

1921

Audubon Co. - Sep. 20. 1921

NAT

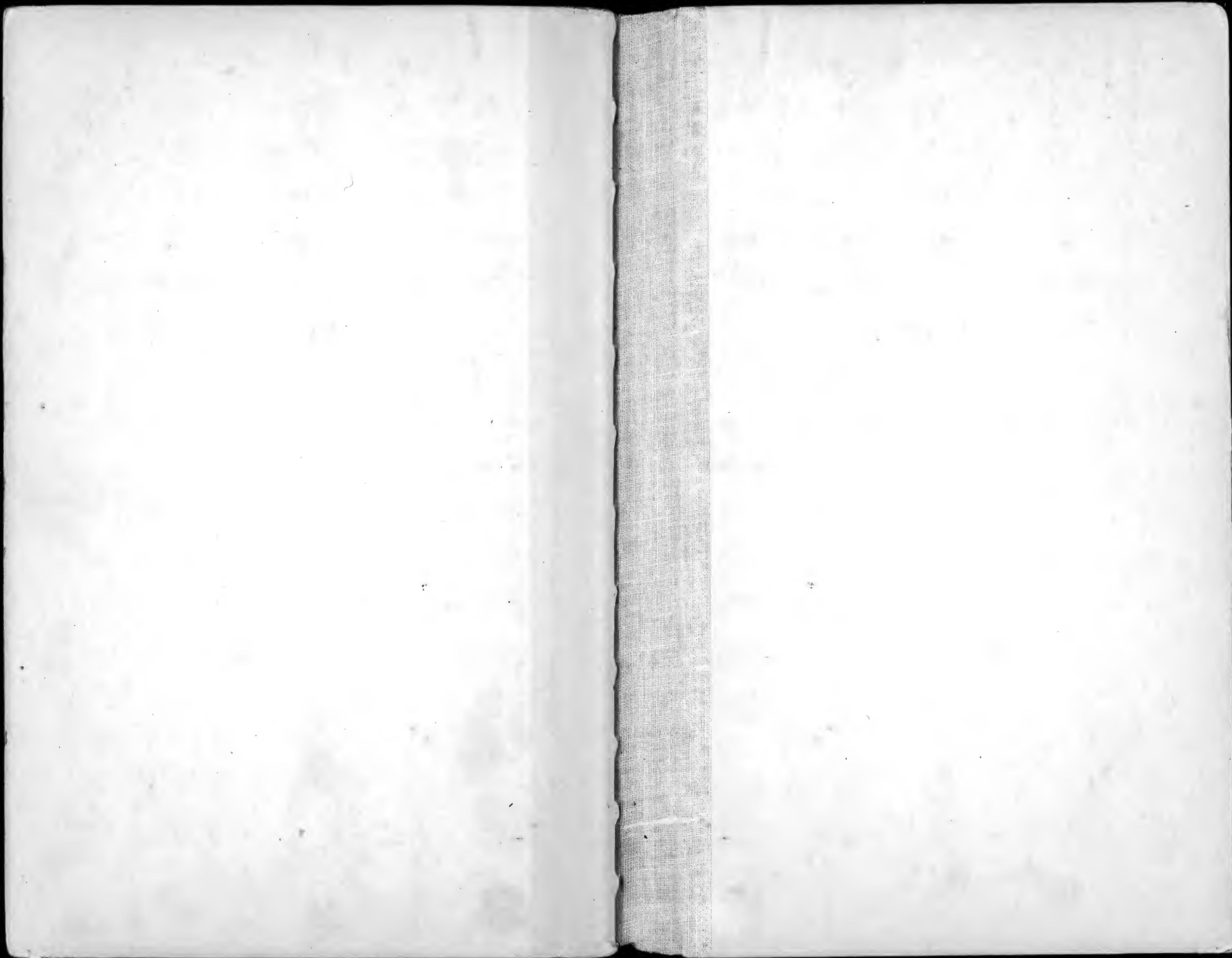
ATIONAL



B. Shimek

Iowa City, Ia.

Reward for return
of this book.



Sep. 20, 1921 - Tues.

Left Shaske's at 9³⁵ AM.

Drove N. in Shelby.

1¹/₄ mi. - This is over the rolling, loess-covered Kansan which is much the same over all N. eastern Shelby.

The day is bright, after the storms of yesterday, and a strong wind is blowing.

Turn E. 1 mi. to county line. Enter Audubon.

Begin numbering miles on co. line.

We go on E. line.

1, 2, 3, 4, 5 - all in rolling Kansan.

5³/₄ Turn S. 3¹/₄ mi.

6³/₄ Turn E. 1 mi. to Gray 1 mi.

7¹/₂ Turn N. 3¹/₄ mi. } The region N. E. of Gray

8¹/₂ Turn E. 1 mi. } begins to show flatter ridges. It is much less

9¹/₂ Turn N. } rugged. To county line

10¹/₂ - In Carroll co. - The country in this part is quite rolling, a little more so than

right at Gray.

Town E. From just beyond the town, to the N., the view from top of ridge shows good rolling Kansas. Drift shows here and there on slopes, & evidently the loess-capping is similar to that S.W.

N.E. the surface is still rolling, but in the distance seems to flatten somewhat.
11 $\frac{1}{2}$. This mile shows drift (boulders) in road, and evidently the veneer is very thin.

Town S. to Colma.

12 $\frac{1}{2}$ - This mile is still through rolling Kansas, quite rolling. The ground is still wet & colors are not clear.

On 2nd line S. of town I dug into a little bank on top of hill, about $\frac{1}{2}$ below surface, & while the stuff

looks loamy, it is rather brownish, - whence may be due to wetting. The surface hereabout looks less-Kansas, but evidently very little loess.

13 $\frac{1}{2}$ - This mile is in Anderson, & is very like preceding.

Town E.

14 $\frac{1}{2}$ - In this mile just (W.) road is still quite rolling. Town E. it is less so, & evidently the ^{new} loess edge ^{is} here, but it is not sharp.

15 $\frac{1}{2}$ - In this the loess-less area is better defined, & the margin is properly located in W. $\frac{1}{2}$.

16 $\frac{1}{2}$ - Almost all in Wichita bottoms,

17 $\frac{1}{2}$ - Long gentle slopes. Drift shows on lower slopes. To Top-line.

18 $\frac{1}{2}$ - Long gentle slopes- drift here & there.

19½ - Long gentle slopes - Some drift,
 20½ - The hill going up from creek toward
 E end shows drift well up to the
 top. There seems to be only soil, a
 foot or so, on it at the top.
 21½ - The country E. & W.,) & somewhat
 N. E., is now much rougher, but
 it seems to be without loess.

Certainly if any is present it
 is very patchy.

In all this locs. - less loess
 the corn looks small.

The hills (ranges between the branches
 of creek show drift to top. The ridges
 however, rise somewhat higher S.

There are two ridges between
 N. side river & creek, the W. one
 higher & on general level of higher
 uplands.

The other is lower. Both show
 drift to top, the high one with a little
 soil.

Between the forks there is a ridge
 which runs up W. about 25 ft.
 above road. Plowed ground on very
 top (which is on level with highest
 uplands) shows pebbles & small
 boulders. The road shows drift & gravel
 also. This is quite rough.

E. of creek the E. (lower) ridge shows
 drift, with a sandy yellow (clayey
 but much sand) layer, probably 5-6 ft.,
 on the E. slope. Very certainly
 no loess.

The next ridge is right at cross roads, &
 drift shows here to top. In fields there
 seems to only a soil veneer, thin, &
 with occasional pebbles.

22 $\frac{1}{2}$ - A series of ridges in this mile
(this is still rough) show drift
(with soil) to the top of each

23 $\frac{1}{2}$ - also shows 3 ridges with drift
as before.

Went 4 mi. N. & from ridge viewed
from valley of Brushy Fork. The
ridges show a couple of feet of a
slightly brownish loamy stuff.

All this country, except road valley
of Brushy Fork, is rough.

This brings us to Co. line.

Guthrie Co.

24 $\frac{1}{2}$. The first ridge in the wood beyond
creek shows a yellow (modified?) drift
with pebbles, clear to top.

Soil wood I assume:

Osmunda macrorhizoma

" *rubra*

Nelumbo am.

falsa

Caryat gigantea	Inglan nigrum
Rhus glabra	Tilia am.
Corylus am.	Pithecellobium
Celastrus scandens	Cornus foeminae
Carya (white)	Prunus alleghaniensis
Crataegus rivularis	
Grey Ash	Prunus serotina

very red - tree now abn.
Liquidambar cap.

On bottoms:
Sopf Maple
Box Elder
Holly any?

A smaller 2nd ridge shows drift

The bottoms are wide & flat.

25 $\frac{1}{2}$. Beyond the bottom (E) there are
gentle slopes & they show drift
well to top. At last one a gentle
slope up toward E. shows a yellow
loamy loamy (?) brownish stuff. See
Guthrie Co. no. 1 sample) Then seen &
or 3-4 ft. of this, not clear.

turn N. $1\frac{1}{2}$

$2\frac{1}{2}$ miles to S.E. cor. sec. 8 (returned a mile and a half. Bridge out to S.W.)

From N. $\frac{3}{4}$ mi.

30 $\frac{1}{4}$ - Most of this is on wide bottomland.

From S.

31 $\frac{1}{4}$ - Mostly on bottomland. From end of this mile (cross roads on top of hill) the country N.W. looks gently rolling. To S. & S.W. it is rougher.

32- Ran about $\frac{3}{4}$ mile of this, over rough, timbered country. Drift shows on all the ridges quite to top.

33 $\frac{3}{4}$ Turned N. $1\frac{3}{4}$ mi.

34 Turned W. to turn:

35- To co. line. at about middle, (at no. 3) on a slope going up to W., drift ^(more down) shows for $3\frac{1}{4}$ ft. & over it lies about 4-6 ft. of loess (gray below, yellow above.)

From S.

26 $\frac{1}{2}$ from this line, on the rather gentle swells, a great view is presented. To the S.W. & W. there is the gently rolling, locustless plain of Randolph, with the rougher hills somewhat to NW. To the NE., E., & SE. a view of several miles is presented, & this seems to be same rather gently rolling plain. It seems to extend at least to the Middle Fork.

At no. 2, on a long gentle slope, drove W., to cross-roads, drift shows almost at top (at top in road) & on the slopes there are 3-4 ft. of yellow sand (with little clay) 27 $\frac{1}{2}$. This is rougher, to valley. Drift shows at tops of ridges, & on slopes.

28- Drove $\frac{1}{2}$ mile on bottomland. To S. & S.W. the country is much rougher, & to SW. a large timbered area appears.

M. side. Lobular residue
for a couple of feet,
below m. mt.

Yellow loam (M.) (C)
brown loam
chocolate 2 ft. (C) (C)
dark 3 ft.

The gray loam has thin tubes &
no indistinct boundaries w/ drift
yellow, which is gray streaked.
Underlying rock - in yellow.
So few fine, orange - seemingly all from yellow
underlying rock - in yellow.

(or long stream no running?)

The cut on S. side shows little brownish & drift

soil samples (C) (C) (C)

soil samples (C) (C) (C)

The slope runs up higher, - that
on which No. 3 is located being
a lower ridge, with another rising
higher to west (20 ft? higher)

olivey sand;

Andropogon a. prairium
Aster multiflorus
a. laevis

Corylus am
U. v. depressum
Ostrya carpinifolia
Kuhnia
Cirsium eriophorum

The top of this higher ridge W. seen
to have only a brownish (reddish)
lobular stuff Not grass?!

A little drift shows not more than
4 or 5 ft. below it.

Near top a few pebbles show about
1 1/2 ft. below surface.

The next ridge near co. line is similar,

Audubon co - going W., begin at col. line.

36- N. line sec. 1.3. A short distance

W. of corner the road runs down a hill. Upper part shows a little gray loam, with a little yellow above (?) Drift comes nearly to top of ridge.

The ridges W. show a reddish or brownish stuff at top & drift on slopes. It is still wet & colors are not clear.

To the north the surface is rough

In this section also N. C.

37 The country is still somewhat rough, but the slopes are longer & gentler. Seems to be no loam, but drift shows a little here & there on slopes.

Turn S.

38.- This is also somewhat rough, but slopes are rather gradual. Drift comes up almost to surface on the first two sides. Only a little soil over it. Slopes gradual.

39- Looking S. E. from near N. end the country is quite gently rolling. Also N. & NE. S. it looks a little rough, but not extremely so. Just a little greater swell. The slopes on this line are also quite gradual.

Near S. end two ridges show drift quite to top.

Turn E.

41- Near E. end the slope down shows drift quite to top. Rest of section shows long gentle slopes & occasional drift

41 $\frac{1}{4}$ - Some drift.

Returned 1 $\frac{1}{4}$ mi.

42 $\frac{1}{2}$ - The line on S. side sec. 22

The slopes are rather gentle & all the territory is of the gently rolling type. A little drift shows here and there.

43 $\frac{1}{2}$ - The slopes are very gentle, - almost flat. Country, far to S. & S.E. shows gently rolling topograph.

From end of this mile N. & N.E. and N.W. The same gentle slopes. Almost no cuts, hence little drift shows.

44 $\frac{1}{2}$ - Very gentle slopes on road & no exposures. All country, especially N. & NW. is very gently rolling. Evidently no loess.

Turn S.

45 $\frac{1}{2}$ - Very gentle slopes. No sign of loess, & as there are no exposures, drift does not show.

46 $\frac{1}{2}$ - Just beyond cross road - between 31 + 32 (where school once was)

there is a shallow cut running up hill to S. At top (S) is stream bed on top. On lower slope there are about 2 ft. of gray loess with iron tubes & above it the same heavy gray streaked yellow loess - about 4 ft. This seems to be at edge of loess-less area.

The rest of way slopes are gentle & no exposures, but hills to SW. are more prominent, & S. the surface is rougher (in next mile).

$47\frac{1}{2}$ (middle trip) The rougher terrain
seems to run about a mile East
this time.

$48\frac{1}{2}$ - the same as the last.
These two miles are not rough, but
rougher land is just to the little
is exposed. Country S. is rough rolling.

Turn W.

$49\frac{1}{2}$ - to co. line.

$50\frac{1}{4}$ -

Turn S. 1 mi.

$51\frac{1}{4}$ -

Turn E. - 1^{1/2}

$52\frac{1}{2}$ -

$53\frac{1}{2}$ -

$54\frac{1}{2}$ - Andover.

$16\frac{2}{3}\frac{1}{4}$ to Shannan

$73\frac{1}{2}$

Reassembled Andover
at 700 feet &
just up and
west of

$\begin{array}{r} 73 \\ 15 \\ \hline 365 \end{array}$

$\begin{array}{r} 73 \\ 5 \\ \hline 10.9 \end{array}$

Sep. 21, 1921. Wed.

Started out at 9 am.

Elevation at curb E. of Presbyterian
Church (block N. of Corinth) = 1000,
1 blk. E., ^{sw} cor. E. Division + Broadway
= 1020.

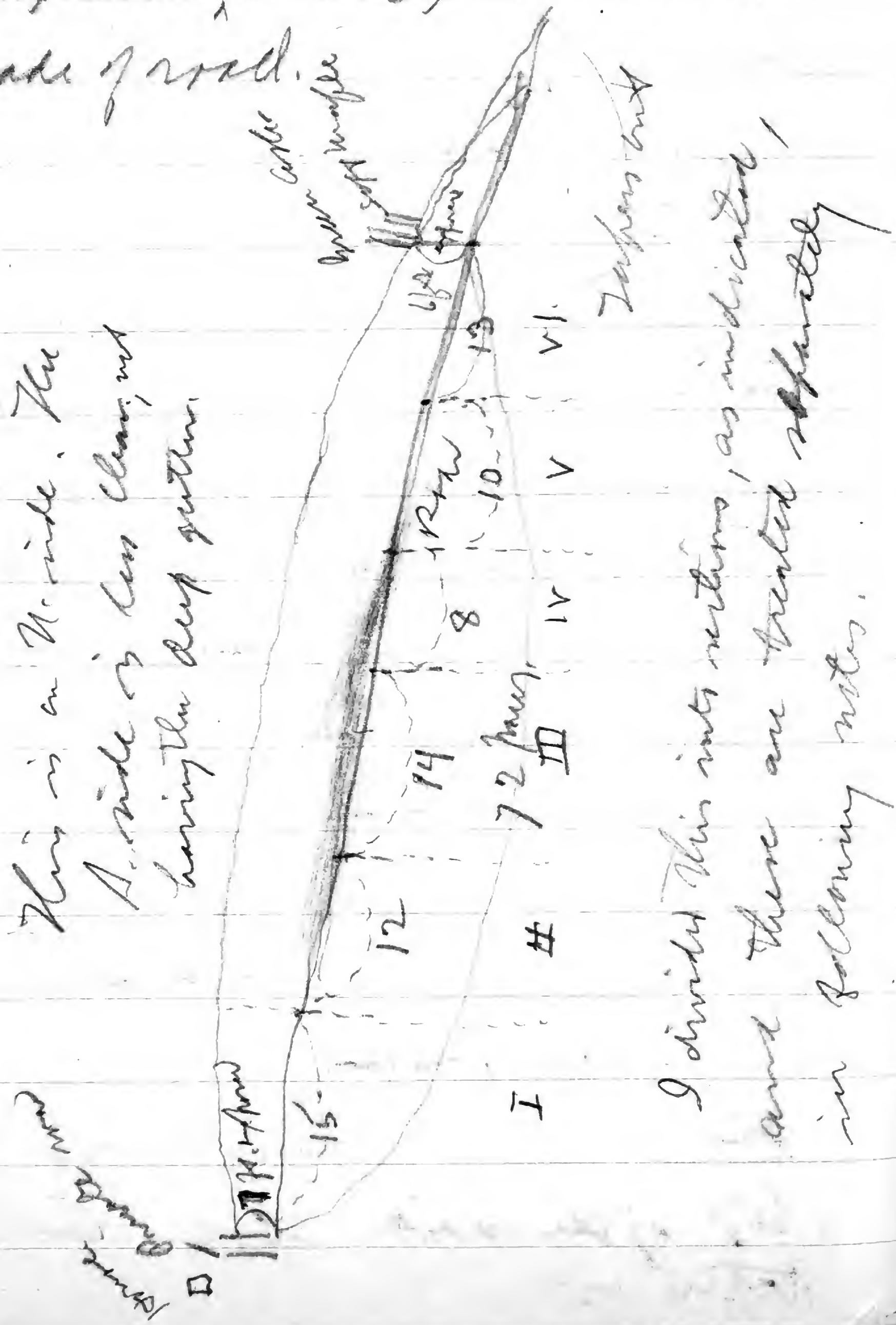
Trees cult. in Andover:

Wh. Birch	apple.
cutleaf "	Scotch Pine
Walnut	Cottonwood
Arbor Vitæ	Wh. Mulberry
Red Cedar	Green Ash.
Cr. Larch	Norway Spruce
Jeff. Maple	
Birch Elder	
Am. Elm.	

^{top of hill}
At top of hill N. $\frac{1}{2}$ sec. on N. line sec. 21-80-35,
 $= 1045$ (—)

Near N. cor. NW $\frac{1}{4}$ sec. 22-80-35 - highest
part of ridge is 1055.

Near NW cor. NE $\frac{1}{4}$ NE $\frac{1}{4}$ 22-90-35
on slope down to E. is a long
and, mostly, recently to cut down
grade of road.



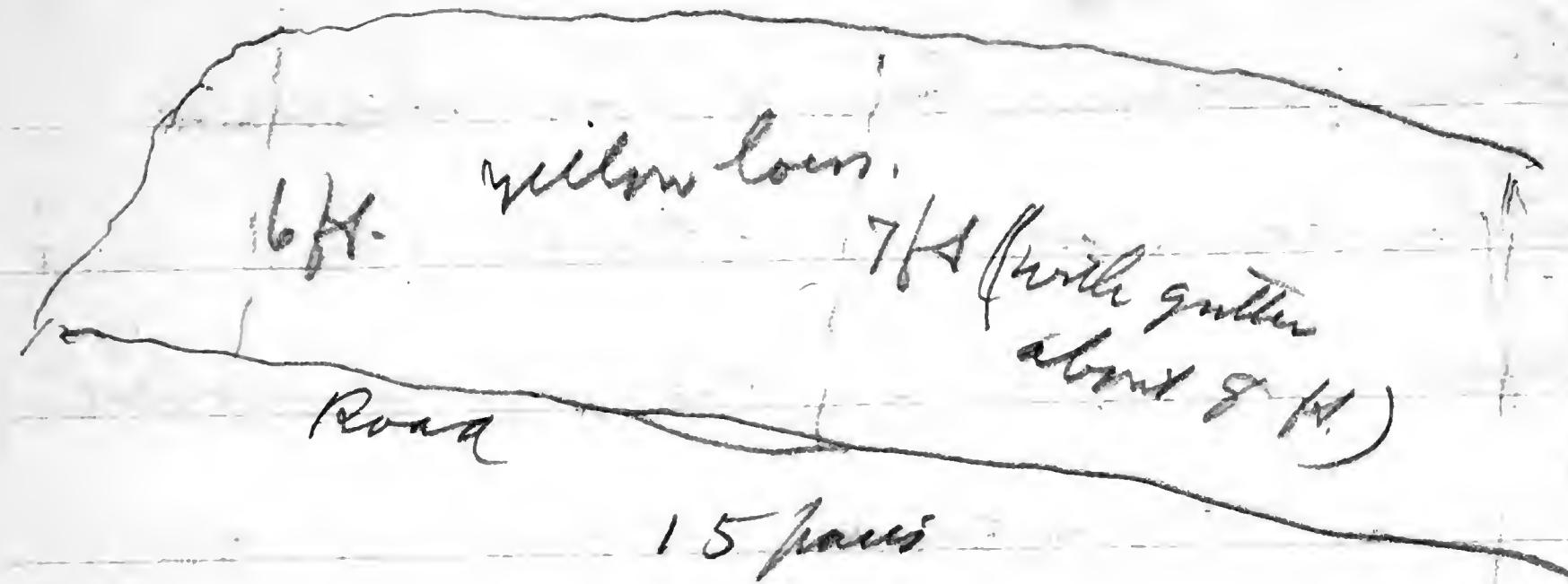
I divided this into sections, as indicated, and these are printed below
in following notes.

The shells in the yellow (older) yellow loess are mostly in lower 2 or 3 ft., & Avana is the most abundant, - only a few other individuals found. No shells in up hill end, in the gray loess shell are found all along except near top end. In the river bank here, avana is quite fragment. In lower the Prairie are more abundant, mostly are few & worn in gray loess, and small & scattered (few) in yellow loess.

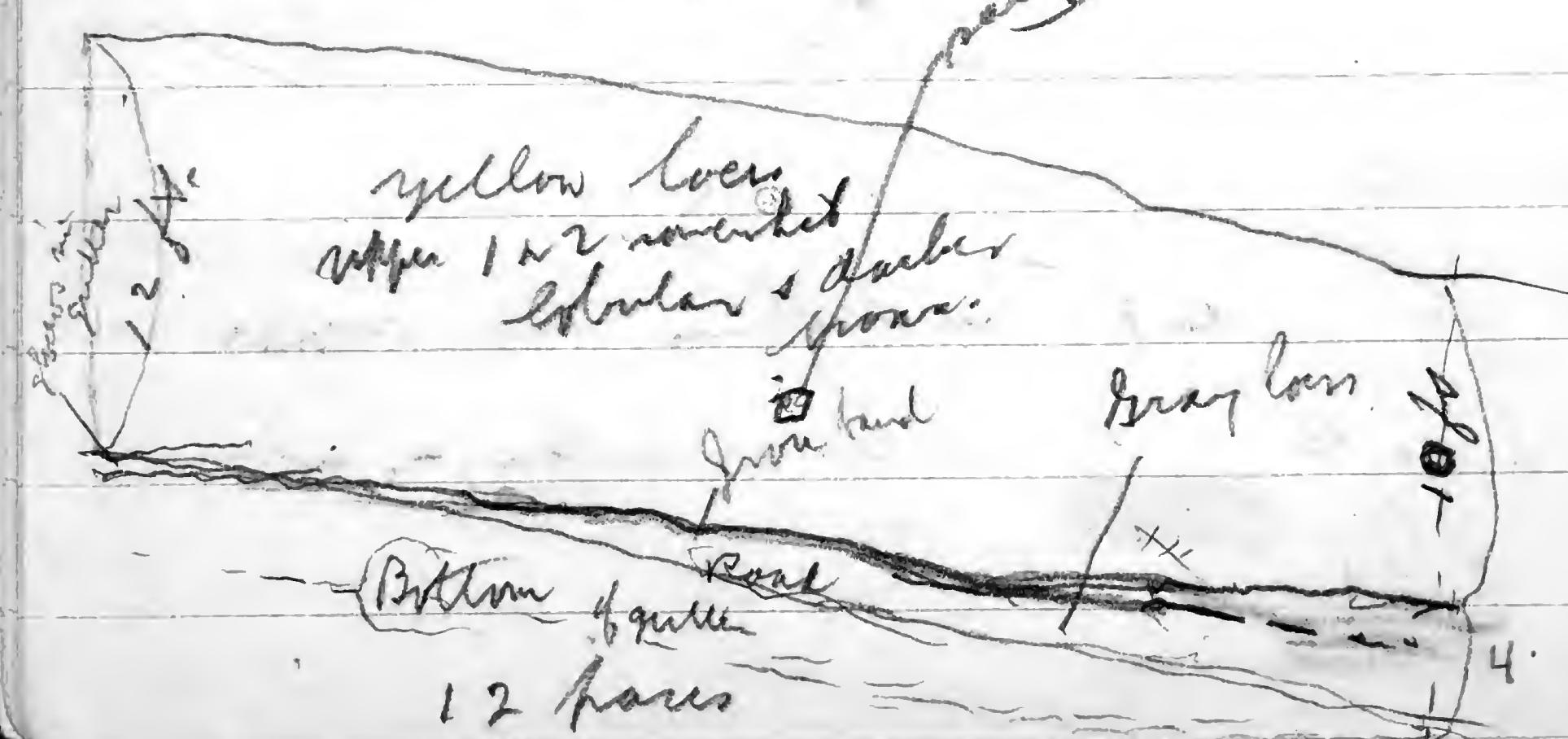
Sect. I. This is 6 to 7 ft deep, & shows
only yellow loam without shells
& with very few nodules.

This extends back not nearly to
top of this steeper slope, but
tapers out.

I



II. In this section gray loess appears at base. It is quite sharply separated from the yellow by an iron band, which is somewhat irregular, but runs about 2-3 inches, in places clearly mixed with gray loess.



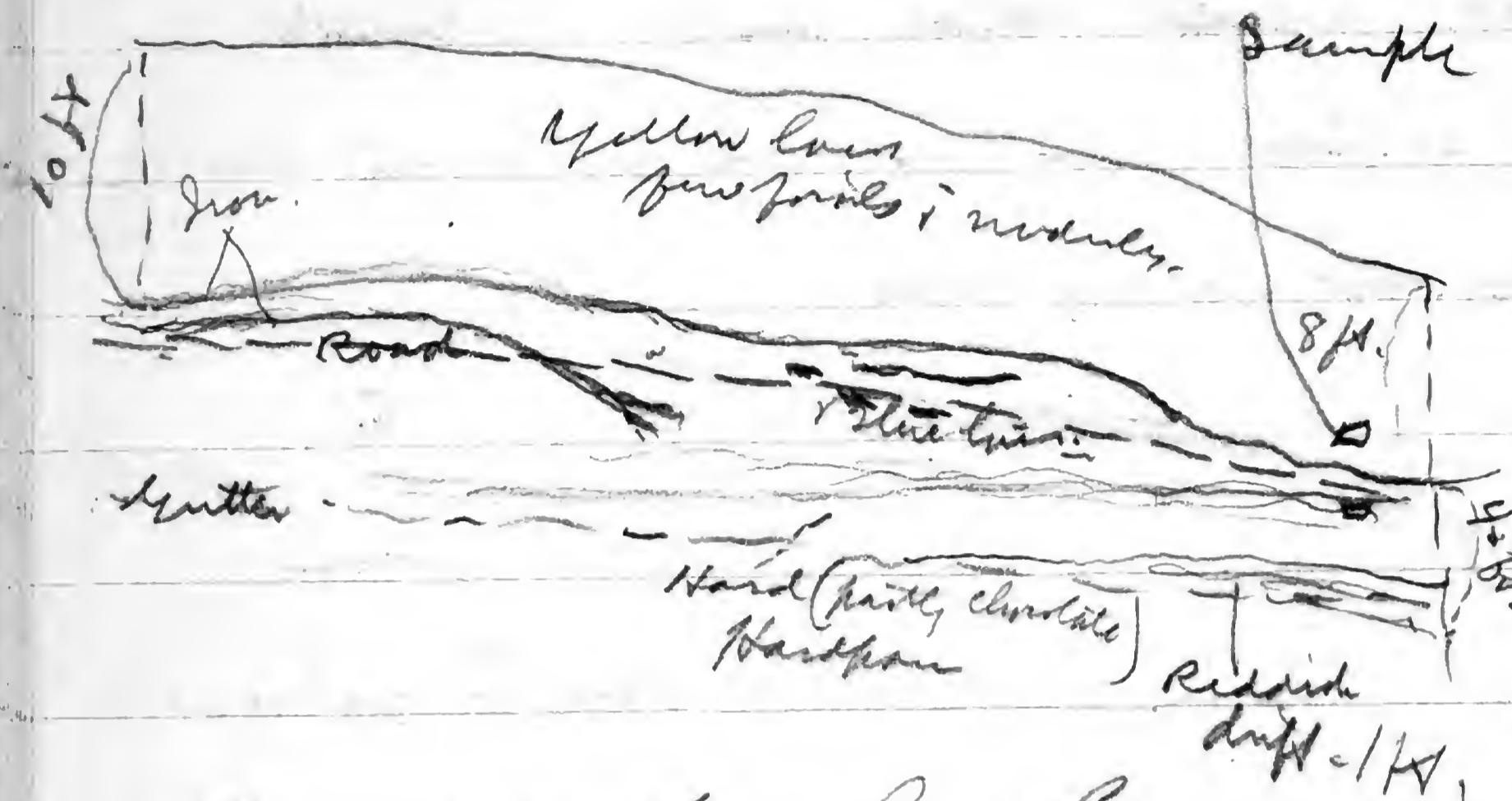
At the E. end there are $2\frac{1}{2}$ ft. of distinct blue loess. This changes somewhat rather abruptly into a hard blue mucky layer resembling the Tongan chocolate. Is this the original source of gray loess? There are a few iron tubes in this also, but in gray they are abundant.

About a ft. of this hard stuff is exposed in gutter. The iron bands in gray loess (at top) divide as indicated. The space between those to W. reaches about 8 in.

(more in next section.)

At E. end the distance from ~~bottom~~ iron band to bottom of gutter is about 4 ft.

III.-



The yellow loam has few fossils, & these only in lower part.

The iron band is irregular, but makes 5-6 in. in places.

It follows one road cut at least 100 feet. Irregular division shows for some distance to E. of that.

The hardpan layer is blue-gray & chlorite, with iron tubes (few) & streaks at places more & less irregular

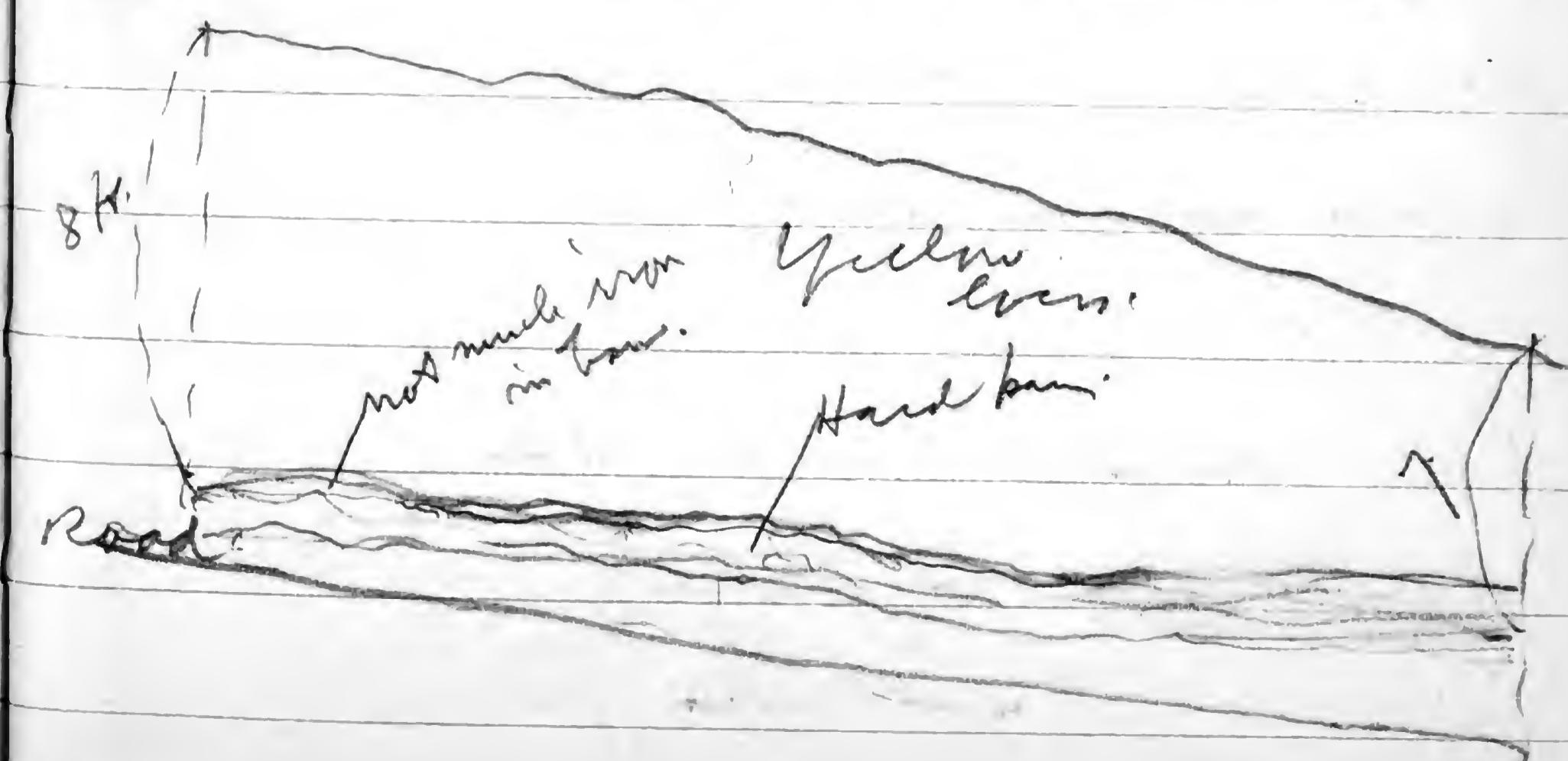
stratification.

The drift shows only a little iron pyrite, & is in this part moderately loamy with some iron.

At the E. end of section the gray loam runs out, & iron band comes right down to chlorite layer. A little irregular gray streak may represent remaining of gray loam. The gray loam has numerous iron tubes.

IV-

No blue loam in this



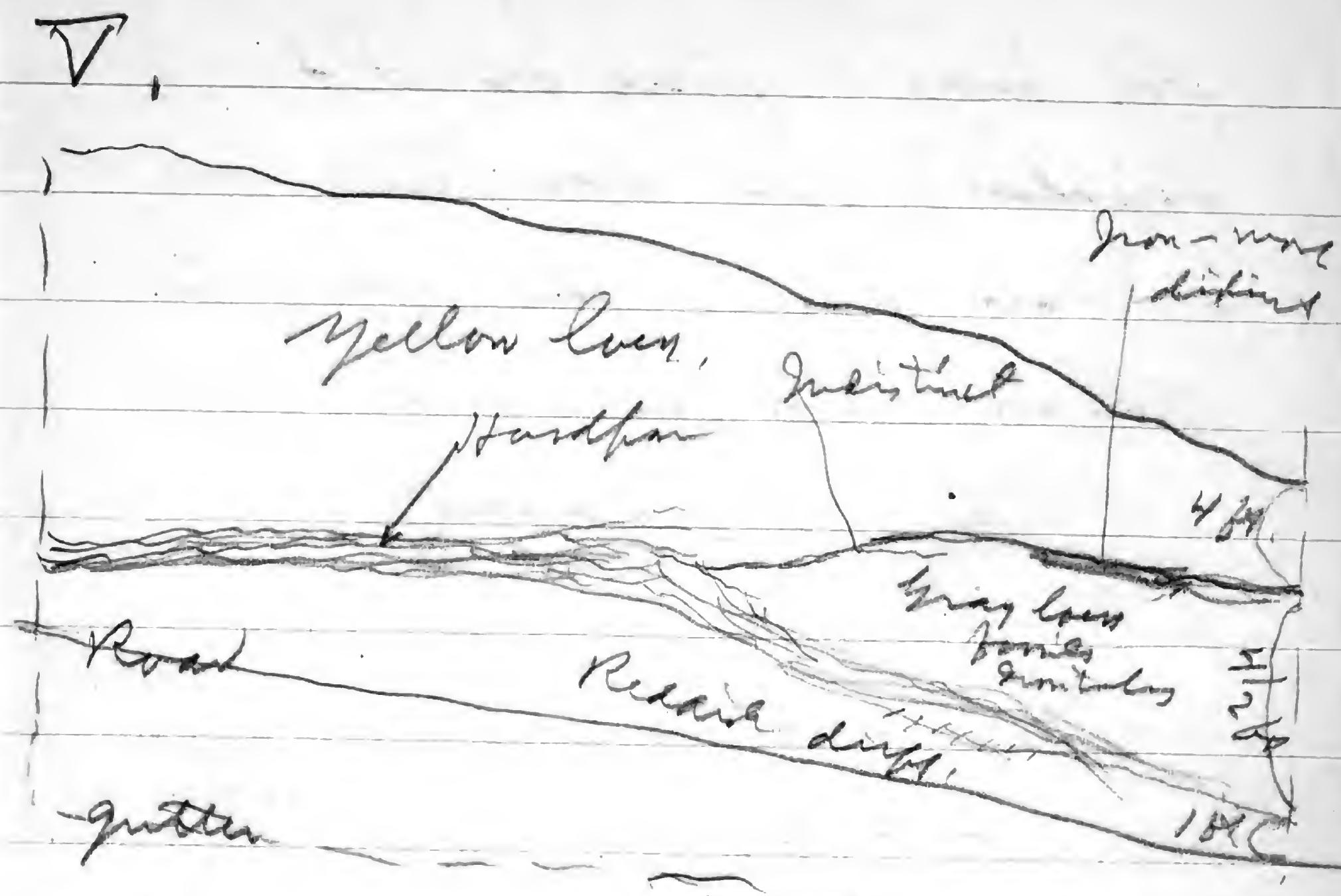
The iron is quite scant & streaked in the iron band here.
The hard pan is blue or chocolate,
& show stratification in wavy
contours. It is about 1 ft.
deep.

Nearly 4 ft. of reddish
drift is exposed in gutter.

At the E. end of this section
there is an 18 in. granite
(mostly orthoclase) boulder
in gutter.

The drift looks reddish
& "granular" to very bottom
of the gutter.

The hard pan is nearly
horizontal. Only slight
fall, as if at edge of
shallow pond or stream.



The hard pan is as in preceding, but
runs out to right.

See Fig. is not distinct & seems
to show gray loam mostly.
With sample of yellow loam (no fine)
in sec. II, 2 ft. above iron band,
at middle.

Hot gray sample just below, & 6 in.
under iron band.

Took sample of yellow locs
(fossilifer) from Sec. III
(2 paces from E. end), &
6 in. above iron band.

Took sample of hard shale
just below this.

This cut runs out (down hill)
at about 58 paces from
Green Ash (sec. cut), at a
fence running N.

The ground then still slopes
down. Readings (barometer)
W. end of cut (^{about} 45 paces W. of
private road, ^{road.} & very sec. I) = 1084

Base of sec. I, ^{E.} W. end = 1072

n. w. cut at Green Ash = 1060

E. End of cut at cross fence = 1044.

Flat at base of hill =
^{mining} 1004 ft

1069 - Run off E. in S. of sec. II, where
iron band is just along on side of road.

The road runs from base of hill
E. on nearly a level (rise to E.) at
base of a hill to S.

It is 205 paces from cross-fence
to base of hill, at A. P. Georgius's
mail box.

The mail box is 160 paces W.
of the Sec. cor. (Sec. cor. of sec. 22

Elev. paces at sec. cor. = 984

Both of the cut in sec. east
show only drift, but both are
toward base of higher hills
rising to upland S.

The drift shows a red brown
band above & gray & bluish
below. Many pebbles & small
boulders.

Reading in road at base of 2nd cut east
= 990.

A layer of brown stuff above drift in there was seen to be 3-5' ft. deep.

The elevation of road at N. edge of bottomland on N. side of rd. 23 = 950
Changed to 965 while I climbed.

On flat just W. of bridge = 950
 $\frac{1}{4}$ mi. E.

At N. E. corner 23 = 965

At 400 paces E. of N.E. cor.
 $\frac{1}{4}$ mi. E. of rd. 23¹ is top of ridge, still
below uplands 2 $\frac{1}{2}$ ft. + S. E.

Reading = 1004

Seems to be all brown stuff here.
It is rather tough, dark brown, &
breaks like fine joint clay.

Not loess.

The yellow loess in big cut
on N. side rd. 23 is of the
older type, with streaks of brown,
black spots, & few small nodules.

Went N. on road along N. $\frac{1}{4}$ mi. line
in sec. 13. Along the line
first mi. N. (in 13) there are
three low ridges, - much lower than
uplands rising to E.

The first, at S., shows only brown
stuff. The second is broader, & on
N. side a gutter (on E. side) exposes
about 5 ft. of the brown stuff.

A little drift here & there.

The third is highest, rising N.,
to a broad ridge. On its S.
slope about $\frac{1}{3}$ way up, brown
layer shows very distinctly right
on drift. No iron or other sharp

line, - it simply blends with it abruptly. It is about 4 ft. deep here, & seems to run about so up hill, for bits of drift show in ditch banks there. There is no loess here!

The highest part of this flat ridge is just N. of the N. line of sec. (at cross-roads) & elevation = 1009.

E. of this cross-road (about 75 yds.)

The top of ridge = 1030 &

E. of that it is quite rough, (but ^{mostly} ^{dry})
Brown stuff shows on the ridge.

965 = elev. of bottom just E. of
ridge, on N. side of sec. 14.

Went west along N. side 14 + 15.

Just W. of N.W. cor. of sec. 15

the top of ridge = 1060.

This is just a little below
general level.

The slopes up toward W are gradual, & no loess is visible, but a much similar to that in cut in sec. 22, & over it brown stuff [thin.]

All the country N.W., N. & N.E. show the gently sloping contours. E. across river (+ N.E.) there is a somewhat higher mass. (May be included in lower area?)

At 4 mi. E. of N. E. cor. sec. 15
^{2nd} highest hill on this road. It

is on general level of upland
& reads 1100. The higher

mass E. of river runs a little

higher, & also hills S. & SW & E.,
but NW, N. & NE. it is in

this general level, & all
with gentler contours.

The bandham comes ^{near} to surface
even on top of this hill.

Drift shows on both sides
just a little below top, in
deep cuts.

A lower ridge W. shows
drift going to top.

The next ridge, also lower
than 1st, is just at $\frac{1}{2}$ mile
(quarter) E. It shows drift on
slope, & on top shows a $\frac{1}{2}$ to
foot or so of gray loam with
big tubules & a few joints.

It has an iron band above,
1' is covered with about 3 or 4
ft of yellow loam & mt.

I saw no nodules, but tubules
are abundant in gray loam.

Saves drifts from gray loam.
A fragment (of fur. am?) was also
seen in yellow loam.

The gray loam must be very thin,
as drift comes well up.

1128 is reading on highest hill
on this road. This is on a level
even with upland road E. of
river. This is about a $\frac{1}{4}$ mi
E. of NW. cor. of sec 15.

The two lower intermediate
(preceding) ridges are probably
40 ft. lower.

W. side NW. of sec. of 15-80-35
sloping up to show drift
2 or 3 ft. of brown stuff
resting right on it. No iron
& other band. All very
N. S. & W. side of 15 what has

is present must be very patchy as drift is everywhere in evidence.

The cut just S. of 2nd ave.
on W. side of 15, shows 2-4
ft of brown stuff, quite sandy,

The cut N. of creek, in S. 1/4 of sec. shows brown stuff & drift,
but no loess. Slope down S

The same is true of next sec.
&, sloping up S., which shows drift & brown stuffs

This while mile on W. side
of sec 15 shows no loess

You ready on hill, n' sec.
corner N. of 2nd ave., at 6
P.M. = 1105 -

At cor. Broadway & Division
St. (W. M. Patrick's church) ± 1071.

This is nearly level but in Anderson,
Perhaps 8 or 10 ft, added to
all that is necessary,

Presbyterian Church curb = 1095
 $\frac{10 \text{ cu ft}}{45 \text{ ft}}$

C.R.I. & P. Ry-dept ^{back at} 990

Dr. H. C. Rogers wants me to
stay at his home, & let him
know when I can come back.
Want a talk, - prefer Friday
night if possible.

The day has been bright
and windy.

Spent evening writing notes
and packing.

Sept. 22, 1921 Thurs.

Arose at 5:30 a.m. Packed basket of material sent to Ella.

Left at 8:45 a.m. for Brayton.
Train is 35 min. late.

The day is bright, and with only a nice breeze.

The widening and grading of roads, and the cutting of "weeds," are rapidly removing even the remnants of our prairie flora along the roads. The cutting of "weeds" is resulting in the destruction of our harder flora of the prairies, but Rag-weed, Prickly lettuce, etc., are everywhere abundant.

Very few parasitic fungi have

been in evidence so far. This is an off year for them. The usual host plants seem to be maturing and drying without the assistance of their parasites.

Walked out from Brayton S. & first crossing (about 1 mi.)

On the road - bottomland ^{subject to water}: I saw;

Crataegus mollis
Salix nigra
green ash *Fraxinus*
Symplocos (red)
Populus tremuloides

Ulmus americana
acer negundo
Inga *nigra*
acer spectabilis
Vitis vulpina

on high ground:

Lilium can.
Ostrya virginiana
green manzanita
Alnus can.
green ash
Symplocos (red)
Ulmus fulva
Lambertia canad.
Carya (white)

Crataegus mollis
Inga *nigra*
Quercus rubra
Bitternut *celastrus scandens*
Ribes gland.
Mimulus canadense
Altis occidentalis
Eryngium atrop.

Also collected a few mosses &
flowering plants, & *Onclea Struthiphilis*!

Also collected several ferns, *Mitchella*,
chiefly under *Tilia am.* logs.

Polygyra monodon

Zonitoides arboreus

Vallonia costata?

Bifidium crenulatum
" contracta.

Zonitoides nivum ciliatum?

Hecimia avara.

A *Lymnaea*? in drift?

Vitrea grammica,

→ The last was most
common under logs, etc., in
wet places.

Enchylium fulvum.

I returned at 3^o PM, &
left Bragton at 4:20 PM
(train 38 min. late.)

Went on home, changing
at Atlantic.

Oct. 27, 1921 - Thurs.
Left Iowa City, for Audubon
at 12:15 AM.

Oct. 28, 1921 Fri.
Reached Atlantic at 7⁴⁵ or
11¹⁵ hrs. late, & missed first
train for Audubon.

A clear, pleasant morning,
but it rained in the night.

It clouded up, & just
about noon it rained
more or less. The roads
are quite slippery.

Reached Audubon at 2⁰⁰ PM.

It has been drizzling a
little, but is letting up.

Wrote my list of ^{or Bennett} Meager
ferns, at Atlantic, &
mailed it before leaving
for Audubon.

Rained in afternoon;
Reached Audubon and put
up at Dr. Rogers' home.
In evening talked to Veritas
Lodge on the 2nd Degree.

Oct. 29, 1921 Sat.
Awakened late. It was raining,
and rained all day.
Wrote notes.

Oct. 30, 1921 Sun.
Rained ^{heavily}, all day.
Attended Methodist Church in
morning.

Wrote notes in afternoon
and evening.

Oct. 31, 1921, Mon.

It was still wet in the morning.
Spent forenoon on my notes.

Clear and windy.

In afternoon went East.

Elevation arb., Prob. Climbs - 1000

Cor. E. Division & Broadway 1027

N. line sec. 21 (on hill) - 1066

This is at foot N. of Auburn
where I took E. -

From here the country sw., W., N.E.

& N. is distinctly rolling Kansas
loess topography.

Also N.E. for a short distance.

Stopped at my big cut

Took photos 15a & 16a of that
part on N. side where band runs down

On opp. side gray loess -
⁽⁵⁾ a little higher & shows a lot

of fossils. Color rusty tan above
yellow, here thicker, has fossils
in lower part, but few.

Elevation S. side - opp. place
where red band drops down on
N. side:

Road - 1065 -

Top of gray - 1068

Top of yellow - 1074

gray - 3 ft. section (more in places)
+ more with gutter

yellow - (must be 10 ft or more)

Tried HCl. - Gray turns effervesces
rather freely. Yellow less much
less so, even 1 or 2 ft apart!

Went E. to 1st cut on S. line
of sec. 13. - Tasted brown stuff
with HCl. No reaction.

Went S. one mile, to opp.
ly mi. E. of N. line of sec. 24

all this territory E. of the river
is gently rolling, with long
slopes.

Turned W. towards Andover.

Between the river and Andover the
topography is decidedly rolling
Loess-Kansas, & the cuts 59-63 are
across the ridges. Cut 63
seems to show nothing but
drift, but it is on the low
slope of a ridge, not at top.

At 5:30 pm. it was too dark
to see anything.

Rode in 2 miles, had supper,
and wrote notes in evening.

Nov. 1, 1921. Tues.

A fine, clear, rather cold
morning. Wrote notes.

Left at 8:40 am for Ross.

Elevation of R.R. = 1000

" " top of hill E. of K. & S. w.
= 1"

creek bottom 1004 (1030)
Just E. of creek a low cut
along road rises to E. At base
& for some distance up, Gluslo Kansas
drift shows above it (at foot of
hill is a ^(perhaps 2 ft.)风化 clay, more or less
calcareous with few pebbles & small
boulders. It is yellow.

This upper part shows little
reaction with A.C. Iowa part, more
^(cont'd.)

This layer slopes down into
drift & is only a modified
part of it -

Sylvester Moore - brother-in-law of

L. P. Kender
Kenna man nysla

The Kanner contains quite a number of small Sos Q. boulders & a few pieces of limestone.

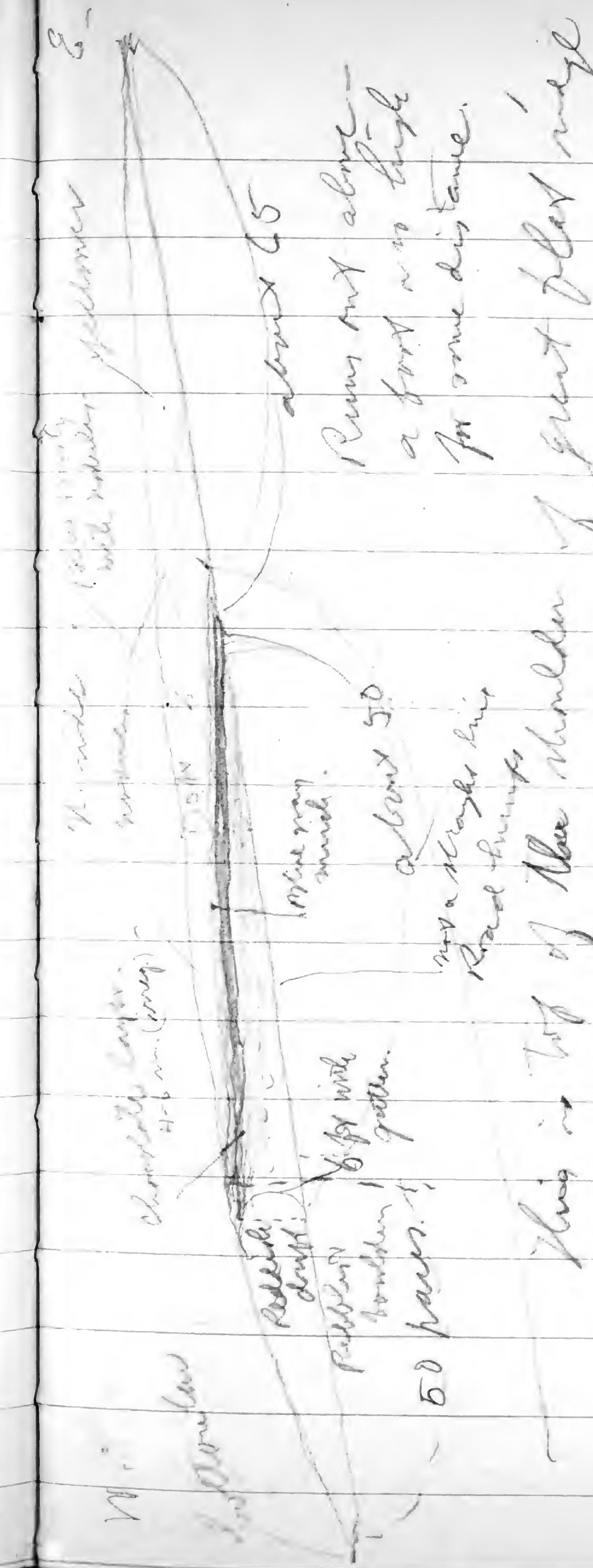
The chalcocite band (in places like gray lenses but heavy) runs west at 50 fms from base.

If other runs were nearly horizontally than surface, & dips under about 50 fms further up.

Above it is a layer of rather heavy stuff, somewhat like gray lenses but with a lot of iron in streaks & cloudings.

Within the low wash "nodules" are many nodules, more irregular & few lower down rounded (see sample) no fossils.

In places there is blue way (6 in. or more) much weathered chalcocite layer, or a part of it.



The height of the profile is about 100 ft. The blue way streaks appear as lenses.

The nodular gray lens² is
very common; blue much very
little; rusty drift none,
yellow apparent.

In places a foot or more of the
blue mush appears like blue
loess, with large iron tubes.

Then a strongly oxidized
irregular band, 3-6 in.

Then the blue-loess-like rusty
drift, grading up into
yellow.

Whole sample - chocolate
blue mush? (locality)

Mixed " " " "

Yellow

Rounded nodules from lower part blue
smaller irregular, from near top
towards top of hill the upper
part is more distinctly yellow,

+ lower. There is a foot or
less of modified soil.

Readings at 4:30

Creek bottom 1045

Top of cut 1071

Top of hill E. 1098

Highest pt. measured 1114

At W. end of cut 1, where chocolate
layer runs out, the brownish
top of drift (at once down the
slope) comes under chocolate layer
of thickness 8 or 10 feet E.
(Not sharp)

Bank is still very wet after
recent rains.

Cut 1 runs out on a shoulder of
a great flat ridge or elevation,
which, after rising to 1098, runs
on the general level of the
territory to near the river bed.

Cut 1 is in 2^m 40A N. from
N.W. cor. sec. 3 Lefroy Twp.

The highest point on N side m. 2.
(about 40 ft. E. of N.W. cor.) reads
1121, but is a few ft
lower than East (1104.)

Evidently the baron is carrying
creek bottom E. 1022

Cut 2 is on Bank of big hill down
to creek bottom. It is badly overgrown,
but by way down a bed of gray drift
about 1 ft. rests on a sandy bed. Above
the gray loam about a foot + of the
mixed gray matrix & above that 2 or
3 (more?) ft. of yellow.

Drift shows toward foot of hill
Cut 3 - is only 2-4 ft. up &
overgrown. It slopes down E.

On its lower slope a very sandy
layer & thin gradient
drift, appears.

The material in the soils all
along looks much like heavy,
It does not look like loess. Indeedly
There is not much loess, & this
only in caps.

The cut just east of creek, E. of
N.W. cor. sec. 1, Lefroy Twp.,
runs uphill E., & nearly all
of it is very calcareous drift (blue
& rusty) with many white pebbles, the
It is very calcareous $\frac{1}{2}$ ft. below
top. Only uppermost ft. of soil
gave no reaction with HCl.
This runs up gradually to a little
platform, or flat top of low ridge, which
in its highest place in road = 1102 (is

is distinctly lower than the
hills on N. side (see 2.)

This is nearly highest point on
this flat ridge.

^{this is cut 4.} At ribbon (8) end of hill at
there seems to be a little brown
stuff (only a foot or two as far as
I could see.)

The slope of bank does not vary
abruptly.

Cut 5 is on E. slope of same
feet high. It shows drift
well up & probably brown.

Cut 6, shows drift nearly to top
with 2 or 3 ft. of brown on way top.

Cut 7. - 1-2 $\frac{1}{2}$ ft. dip. Shows brown
on top & drift on both S & W.
slopes. Little on E. slope.

No loess in these last cuts
The topography is also somewhat
more gently rolling. Perhaps this
shiner be cut from loess area.

Yes! - At corner of top much yellow drift -
a lot of fine yellow.
went N. 1/2 mi from top corner.
Elevation at high pt 40 ft. N. of
corner = 1135 This is height
of general plateau.

A splendid view in all directions
excepting W.

Rock photos 33 + 34. W. of N.

" 12 S. of E. across Kishon

Both show the less rolling topography
of the loess-less area.

Looking N. & NW. (to NE. & E.)

The country is gently rolling,
none of the abrupt loess-Kansas
slopes. All this part should

be cut out of loess area & the few "islands" of loess can be represented separately.

2nd reading (on return) of high point is 1145.

On the way up (W) to high point, perhaps 18 to 20 ft. below top, a lot of small nodules in road indicate a little loess.

There is no way to show this clearly.

Reading on river bottom S. of NE cor. of LeRoy Gap = 1006.

On bottom land saw:

<i>Alnus americana</i>	Pigment
"	Worm's skeleton
2 nd Maple	green ash
Cottonwood	Honey locust
Birch Elder	<i>Crataegus mollis</i>

Now middle of 1. line vs. 2 there is a high rather steep bank about 3' up from base or less, a gray stuff with iron tubes (like gray loess) is exposed about a foot. Further up the bank cut over 1-2 ft shows yellow lobular stuff may be loess? No fossils.

This line to the W+S was from Ross to Andover, is quite rough.

Drift shows here & there, and evidently the top covering is thin.

Had a ride to Andover

C. W. Rd. Andover 1066

Taken at 5:30 P.M.

Moved to Sweet Home Hotel for the night. Arranged materials, visited Rogers; went to bed.

Nov. 2, 1921 Wed.

Arose at 6¹⁰, packed, wrote letter, and left at 8¹⁰ AM. for Exira.

The morning is clear but rather cold.

At Exira I put up at the Park Hotel, and went S. (and S.W.) along bottomland road on E. side of river. There is a terrace-like area S. of the E. + W. part of the road, and it is also noticeable on the N. side of the creek, including the W. part of Exira.

I worked in the bottomland woods just SW. of Exira, noting trees & collecting a few fungi and a moss.

Bottomland timber	Exira
Box Elder) acer negundo	saccharum
Sassafras " sambucus	canadensis
Tilia americana	sinuata
Bur Oak	lutea
American Elm, Ulmus americana	Euonymus atropurpureus
Cottonwood	Ribes glandulosum
Oreamnos americanus	Symphoricarpos (red)
Ingram magnolia	Corylus americana
Lilac	Rhus glabra
Green Ash	Rubus hispida
Cottonwood	Cryptomeria canadensis
Populus deltoides	Polygonum scandens
	Nicotiana quadrivalvis

went south.

No terrace just S. of Exira is quite flat, but soon builds up. The general bottomland includes it.

The new terrace-like plane is in rec. 9. This is really a flatter extension of highbluff.

At (x) S. part of rec. 9 - a cut in road shows about 2 ft of a joint bluish + yellow heavy clay. No reaction with HCl.

At O in rec. 16. is a low hill from

which there is a fine view. S.E. & S.
the country is rough, cut up somewhat
by valleys, & is was evidently all timber
W. & SW. The view is over a
gently undulating area with long
gentle slopes. No forest except
down along river.

N.E. it is somewhat rougher
and here & there in valleys are
scrubby groves.

E. it is somewhat rough along and
but only for a short distance.

The "bluff" slopes along the river
are all very gentle, - especially
on E. side W. of the riverbank.

"A low cut, ^{just} E. of S.E. cr. of sec. 16
shows about 6'-8' of what looks
like gray loess ^{at base} ^(rather small). It
has iron tubes, but no stones,

Expenses (cm) Andover, Sept. 1921

Sept. 21 - Lunch ²⁵	.25
" 22 - Hotel 2 room, 5 meals.	4.50
Basher ¹⁵ , Cr. juce, basket,	.60
RR. to Brayton (Bed. Inn) no tax	.48
Lunch, Brayton ³⁰ 2nd lunch ³⁵ .65	
RR. Brayton to Iowa City (no tax) 7.74	
.14.22	
<u>To Andover - Oct. 27 - (Geo. H. L.)</u>	
Oct. 27-1921 - Taxi - Iowa City	.25
RR. to Andover (no tax)	8.22
Oct. 28 - Breakfast (Cardie restaurant Atlanta) .55	
Virginia cafe, Andover dinner .45	
Bakery (lunch) Curtis' Rest. .75	
Oct. 29 - Curtis' - Breakfast ²⁵ Supper ²⁵	.50
Oct. 30 - Breakfast ¹⁵ Supper ²⁵	.40
Oct. 31 - " Breakfast ⁴⁵ , dinner ²⁵ supper ⁴⁵ 1.15	
Nov. 1 - Breakfast ⁴⁵ lunch ³⁰	.95
RR. to Roslyn ¹⁰ , plates ²⁰ , fruit ²⁵	.16
Nov. 2 - Sweet Home Hotel supper, room, breakfast ⁵⁰	2.00
RR. to Exira	.95
Taxi, Exira ²⁵ , lunch (Bakery) 25	.50
Nov. 3 - Park Hotel, room supper ⁵⁰ , Room ¹⁰⁰ , Breakfast ⁵⁰	2.00
RR. to Brayton ¹⁵ lunch ²⁵	.40
RR. to Atlanta (no tax)	.45
Plates ⁹⁰ , Basher ⁴⁰ , glue ²⁰ , Magazine ¹⁰	1.70
Supper, Cardie	.50
Nov. 4 - Room ¹⁷⁵ Breakfast ³⁵	2.10
RR. To Elkhorn (no tax)	.50
Lunch - Elkhorn restaurant	.40
Supper, Curtis' Rest. Andover	.75
	24.65

Nov. 5 - Andover. Mrs A.C. Rogers room	1.50
Breakfast (Geo. D. Curtis)	.90
Dinner " "	.30
Fruit, etc.	1.50
2 baskets - 50; express 2 baskets ¹¹⁸	1.68
Gov. Shaw - And. to Defiance	6.45
Nov. 6 - (Sunday)	
Nov. 7 - Emma - for kiddies	5.00
RR. Manila to Defiance ⁵⁰	.28
Lunch, room, supper Downing Hotel, Defiance .75	
RR. Defiance to Manning (no tax)	.66
Bus, Manning	.25
Nov. 8 - Park Hotel, Manning, Room, breakfast ¹⁰⁰ .45	1.45
Lunch, Virginia Cafe, Manning	.30
Buses, Manning	.25
RR. Manning to Cedar Rapids ^{20 tax} 6.89	
Dinner, Restaurant Perry - car to Cedar Rapids	.35
car to Marion	.18
Supper Marion, Rubbel's Rest	.40
Packets (4) - Cedar Rapids	.40
RR. Cedar Rapids to Des Moines ^{4 tax} .96	
Coffee ⁵ , paper ⁵ , magazine ²⁵	.35
	30.98
	24.65
	\$55.63

My extras:

Fruit for lunch	Notebooks
Iron	Maps
odd bundles	Shaw, etc.
Market	Laundry
sugar sacks	
express charges	
Permits	

(dark bark two leaves)

and the first exposed gave no reaction with HCl.

Took sample 4-6 m below top of gray.

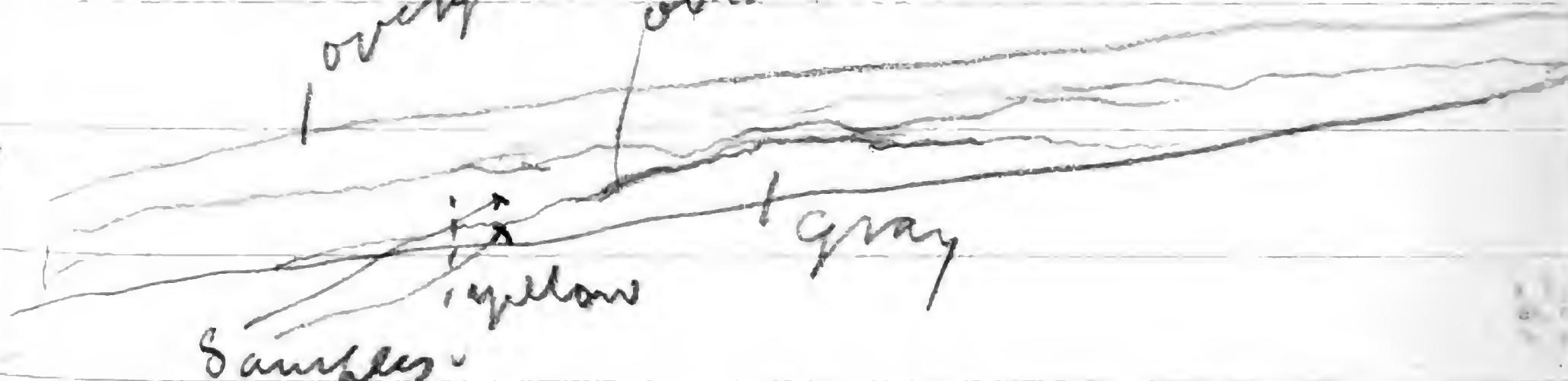
This passes upward quite abruptly into a yellow layer, here 1-2 $\frac{1}{2}$ ft. exposed. (+ above this + 2 ft overgrown).

Both appear bedded (a slightly jointed) and may not be lens.

No fossils.

Farther up the slope the gray rises higher (2 ft) & there is a strongly oxidized belt between it & the yellow. The yellow becomes correspondingly thinner.

overgrown oxidized band



Neither gray nor yellow gave reaction with HCl.

Upland timber in sec. 10:

Q. macrocarpa

Q. rubra

Pignut

Zizostemum (^{orange}_{yellow} fr.)

Red Elm

Prairie rivulet

Quaking asp.

The boulders
see at SW & S
edge

There's ridge E. elevation gray

steep, ~~may~~ ^{seen}, & when dry, it
looks more like joint clay.

Probably none of this is bed.
Drift (medium & pebbly, with small
boulders) shows on nearly
all the ridges along S. side sec.
9 & 10

The country E. to S. in sec. 10 &

somewhat beyond, is quite rough.

Sec. 10 itself is pretty well broken up.

From hill just E. of S.E. corner sec. 10
the view E. S.E. & S. still
shows rough country, but evidently
it runs out E.,
so the N.E. it runs S. to become
gently rolling.

All along E. side of sec. 10 there
is a row or belt of scrub
brushes, 6-12 ft (mostly 8-10)
at or just outside of fence. This
brush belt is broken only in the low
draws. On S. side of road
the belt is more interrupted
& scrub is running to make it
continuous.

There is also a good belt of
prairie along the road.

Drift shows here, there, &
as before.

With the oaks is a lot of scrub
hazel, especially on W. side of
road. A few *Rhus glabra* (low)

Saw a Juno in the scrub stuff
Also Black-capped Chickadees,

went a little E. of N. E. or from
10. N. & N.E. (beginning not over

1/2 mile N. of N. line of RR. 11 -
is the gently rolling low-slopes
area, as far N. & N.E., as I can see.

E. line of RR. 11 is quite rough
& shows much drift.

On hill down, on other side

S.E. of Gima 4-5 ft. of brush
surface stuff above. On the
vertical banks the weather
into a granular stuff (small lobes)
Quite a little drifts towards base.

Saw a Magpie - black
with white wing spots (large)
& white belly - upper breast black
ka-ka-ka-ka.
Goo goo goo goo - note.
Tow-tailed

base of steep slope	1018
top. of tree W.	1080+6

Return - top = 1080

base of steep slope = 1012

base of gentle slope (flat) = 965

RR - CRD & P. = 965

steep part = $4\frac{1}{2}$ rods ($\times 150$) = 675 ft

Gentle slope = 10 rods = 1500 ft.

20 rods = $4\frac{1}{2}$ " = 675 ft

20 RR = $2\frac{1}{2}$ " = 375 ft.

Bottom is 3-4 ft lower than
RR.

The country W. is somewhat
rolling. all the slopes along
the river valley are gradual.
The country N. of Gima seems to

be of the gently rolling type.

at the top of the hill W. of river (W. of Exira) there is a cut about 6 ft. deep. It was rather dark, but as nearly as I could make out the stuff is all the yellow, lobular upper kind, and not loess. Took sample.

Drift shows in & along road well up to near top.

Exira is partly on a sort of bench or terrace. It begins at W. side of business part & takes in a little over a block.

The day was ^(cold) cold, windy, & mostly clear.

Nov. 3, 1921 Thurs.

Arose at 6:³⁰ am. A clear, rather cold morning. Had a heavy frost last night. Wrote notes.

Left for Brayton at 8:³⁰ am.

Went S. from Brayton along RR.

Saw more ^{quite a number.} Juniper. Collected fruit of a very tall (7-8 ft) Chionanthus - no leaves.

Went to Terrace near co-line.^{s.} The RR cut here shows only a loose yellow stuff that has an appearance like that of the brownish uppermost (main) layer of yellow loess. No nodules or fossils.

Top of terrace = 910

Flat at cross road = 875

The terrace is now ^{35 ft.} Height of broken.

Farmer says bottomland will give him 70 bu. of corn per acre & hills 60 bu.

In bottomland timber (edges)

Salix eriocephala	Pyrus species
Box elder	Citrus mollis
Am. Elm.	Rosa (4 ft tall-pink)
Salix amygdaloides	green ash
Rhus glabra	Acer saccharinum
Salix nigra	Vitis riparia
Quercus macrocarpa	Ostrya virginiana cordata
Silva americana	Symphoricarpos (var) "egg"
Celtis occidentalis	two sp.
Wht. Hickory	Brunn. apetina
carya ovata	

Went up the river along the E. side, in bottomland timber. Found a good many fungi and some slime molds.

Barnwood luff most common,

Am. elm next.

This timber has practically no underbrush, and the trees are not closely crowded.

I also picked up some mollusks under stumps & logs. Not many species, Vicia hammonia most common (about 60 ft)

Zonitidae, aborescens & Limax cambarinus were next in abundance. Polygyra randa, Encolpia fulva, Nipponia castanea, Pyramula tristella?, Volvonia cestata, Lut. ornata, were found in small numbers.

Found a splendid Zelkova? in large patches in a big fallen log (balsam?).

Boarded back to Beaufort to get train at 3:50 P.M. for Atlantic.

Reached Atlantic at 9:45^{PM} put up at the Cardis Hotel.

Worked late mapping, labeling and packing my materials.

Nov. 4, 1921, Fri.

Arose at 6^o-am, finished packing
(Was embarrassed by starting off without
paying my room bill! I had paid
for my breakfast, took receipt for the
whole bill, and started off! Of course
in the beginning of the abrupt wind!
Dressed, and with bus full of plans for my work,
left Atlanta for Elkhorn at
7:30 am.

Just after leaving CR. I & P. (near
which the line runs westwardly for
some distance), the RR follows a
creek valley. ~~After~~ RR. gets on
W. side of it it has W. Bluff
cliffs & the E. bluffs are close
to creek.

The country on either seems
to be quite rolling, but not

especially so. The bluffs are
mostly very gentle slopes, formed
thus ~~the~~ ^{the} Caves co. The co.
line is just N. of Gates.
The "bluffs" become more
gentle as we approach co.
line. The valley widens somewhat
also, then narrows just before us
at Gates.

Cut just before Haven - then drift.
Locs in cut just at Elkhorn -

went N. along RR. - Cut B - s. ^{red} ~~pink~~

Base of cut = 1065 - ¹⁰⁴⁵

top of cut = $\frac{1095 - 1075}{30 \text{ ft}}$

Cuts A = Base 1020
top 1035

This is on a lower spur.
On E. side at least 10 ft of yellow
loam is exposed. It is rather soft,

without nodules or fossils, & rather uniformly yellow (brown slightly).

On the west side irregular exposures of yellow limestone. About 6-9 ft. below top I found a few fossils & a couple of round nodules, nothing but yellow limestone below. The cut is much overgrown, however. The fossiliferous part is laminated in lens fashion, & has small iron spots or colorings. Took sample, 8 ft from bottom.

W. side sample

On E. side took sample about 8 ft. from top

sample

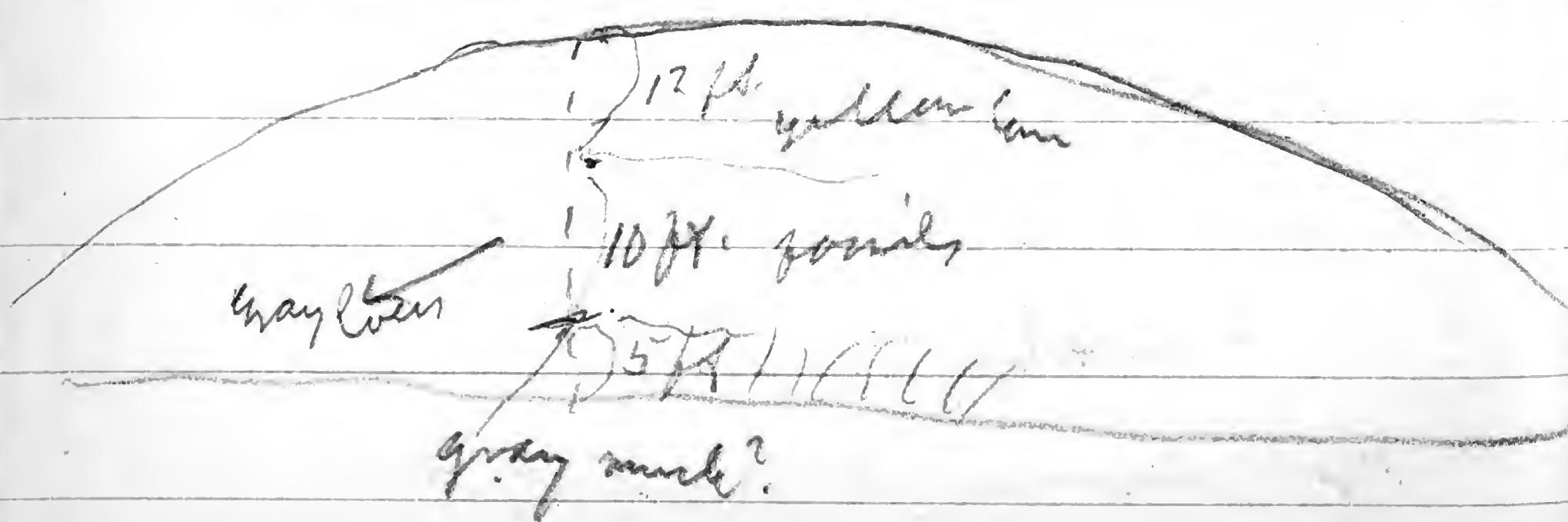
There is a long, low cut between A. & B. It is 8 ft deep on W. side, & very low on E. It is hardly overgrown, but seems to be in loco.

The region W. of flat mesa with cut B - across creek, - is gently rolling. The whole area W. of creek is mostly of the bedrock type. Photos 21022 - looking W. from above cut B.

Returned to cut B.

The W side is more overgrown. The E side is slumped at base, in one place very low shore

about 6 ft. above track. It is gray, with iron cloudings & small tuber (not many) It is heavy, sandy & without fossils so far as I can An irregular river course is observed
 The gray ^{above} layer, is only moderately heavy with small iron tubles & small cloudings, & with fossils, In lower part few rounded nodules. The above is widely below red gray layer, which seems to be at least 10 ft thick at one point N. facade + 5 ft. above rail.



A couple of feet (at least) of yellow drift shows irregularly at base. N Cl gave no reaction in blue mud, gray layer or yellow layer. An irregular rusty band separates the gray & yellow. The drift does not show in bank, but follows an irregular surface for a couple of ft. (No gravel boulders). The weathered gray layer looks yellowish, but where there is a possibility of mixing with soft yellow upper layer. In the more weathered parts it is grayish with rusty cloudings.

Went to Cut C. (do 3)

Electro fossils & round nodules in gray layer

Brassenden saw about 10 ft. (green at the mouth)
to right

5

8 ft. yellow loam

* - - - - *

9 ft. every layer pounds!

is about 4 ft. + sterile much?
Dried below?

Same ground in band

The yellow loam is best I know soil.
It becomes brownish with more clay becoming
and rather shaly & less in places some glacial
tarn. The may vary from yellowish tan to
brown. Many iron nodules & gravelly
down to 4 ft. fine sand bottom, then yellow

The much calcerous (gray or black)
has some chocolate streaks in it
No response to HCl.

Took samples - all +
The gray loam effervesces freely
with HCl, but the yellow &
the blue-gray much did not at all.
 Went to Cut 1 (old) (- 8)
Barometer same and = 22 ft

Yellow loam (same as in 3)
about 10 ft. (no effervescence)
gray loam with strong rusty brown
Many iron nodules; bands
Frontal - (8 ft or more)
Iron part flumped.

See next page
This is always more at base
than last year.

200 ft

100 ft

Lower sand &

11. July

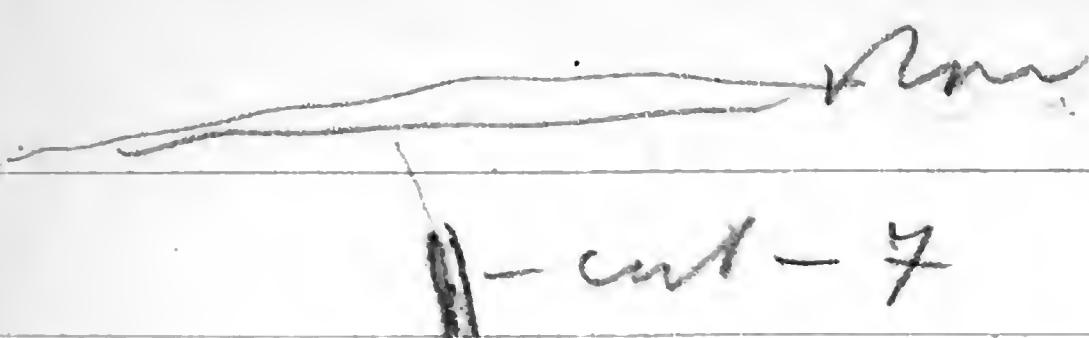
Dark brownish/black

Middle layer brown & yellow
Dike not clear for first time.
(see last page)

A little sand
shows clay
base.

Cut E. is in Elkhorn-H. of
station. It is about 15 ft in
E. side & 18 m W.
Gray loam shows on E. side up to
within 6-7 ft of top - oxidized
loam makes it. Lower part
humified.
W. side is also humified
very poor, but I found a
few fossils in gray loam.
Also some rounded nodules in W.
gray loam did not differ
within 1 ft from top, but did
freely several ft. below.
There was no difference in the
appearance (the visible characters)
of the loam in different parts,

Elkhorn



- cut - 7

3. - cut - about a little gray, like
Purdy brown, thin 5-6 ft
yellowish most of cut
in gravelly drift (6) pebbles?

Mr. Knes + (thorough from Des
Moines) came to Elkhorn for me.
We drove down (S) to place
where wagon road leading S.
crosses the RR. Cut 7. is
just a little ways below (S) of the
road. Its lower part is
somewhat slumped, and I could
not see any drifts.

Cut 7. (should be
cut, lower)

about 7 ft yellow brown.

gray brown - 7 or 8 ft. approx.

about 5 or 6 ft - taken at base
W. side -

just S. of road -

a few joints in gray brown
beds samples of yellow +
gray.

We went on down the track
a few rods to cut 9. This is
a lower cut, - on ^{lower} slope of ridge,
hence not through high part.

Its W.E. side is higher.

A brief description is given
on preceding page, with flat.

We drove to Andover
by way of the ridge road,
leaving Kimballton to the left.
This ridge extends all the
way to Andover, and shows
evidence of loess at various
points. The broad neck valley
to the NW. is almost
parallel, and beyond it
the country looks less rough
(though I found it quite rough the
following day.) On the right
hand side the country is quite
rough in the first township, &
then is slightly less so, but
keeps rough more or less all
the way to Andover.

(See Township plates)

Mar. 5, 1921 Sat.
Spent forenoon in packing, etc.
Plastered 1 basket with clay samples
& laundry to Ma, and one with fungi, etc.
to Miss Cavanaugh.
Started b.W. about noon (12^{th})
The country S + SW. is rough, as
indicated on map. N. it is so for
only a short distance.
In T. 2. in sec. 7 - Hamlin Mfg
my old cut is a little deeper. It
shows a little of the ferruginous
zone in the bottom of the gutter
(distinct rusty layer) & below that
I found (by digging) a gray loess[?]
with iron tubules ^(water soluble). It is about
7 ft. to this from top of bank.
above the ferruginous is a heavy
gray, (lobular) yellow (with gray streaks),

clay, probably loess, though very
heavy & lobular. (Dark reddish.)

The eastern part of Grand is obscured
by old soil, etc.

We left ridge road for Top-
line between Shanns & Hamlin
Twp. & drove S. to Church, N.
of Topline.

The region S. shows the
front valley of the Arkansas &
then hills (mainly but not
nearly broken) I.

E. the country is more ^{gently} rolling,
not rough & W. the creek valley
is bounded by rather gently
meeting contour curves.

S. of the N. E. in sec. 36,

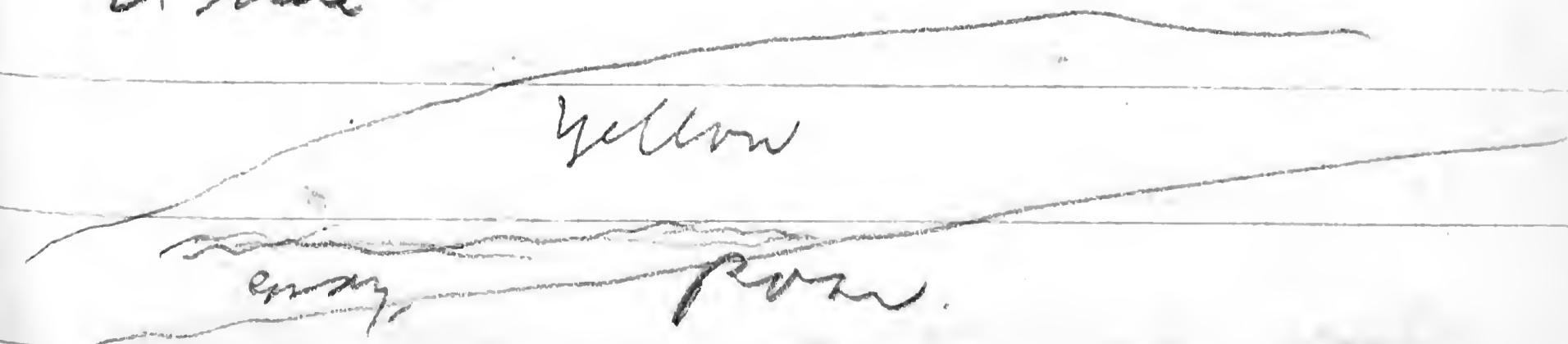
Major Twp. is a cut facing
S. (just before coming to Church on next swell)

& it shows perhaps 4-5 ft of
yellow loess (like in sec. 7) & toward
base a couple of ft. of gray loess
with iron tubes & no nodules or
fossils. No nodules or fossils
in sec. 7 either. The gray
loess has strong rusty band above.

About $\frac{1}{2}$ mile N. of N. in sec. 36
Knox Twp. there is a slope
facing N. which shows yellow
loess, ferruginous & gray loess as
in preceding & in sec. 7.

Yellow about 6 ft (with soil)
Ferruginous - 3-5 in.

Gray loess 1 $\frac{1}{2}$ ft exposed
E. side?



Evidently all this upland was prairie, & hence
no fossils.

(quite)
On the high bank S. of creek, on
E. side N.E. from 25, about 2' up;
the drift (rusty, pebbly, & with some
cobbles) shows more than $\frac{1}{2}$ way
up the hill. Then heavy yellow
loam (grazed color) shows &
I saw no gray loam.

Evidently there is only a thin esp.
The other slope N. seems to be similar.
The rather low cut on my steep hill (facing N.)
on E. side N.E. from 24, shows drift
more than $\frac{1}{2}$ way up, & on top yellow loam.

On the steep hill S. of N.E. cor
ne. 24 Kharan Top, the drift
runs nearly to top (less than $\frac{1}{4}$ from top)

Yellow loam, with a little gray at
base (no ferricrete, but grading)
shows well up the hill.

On E. side ne. 1/4 mile on 13-79-36
(Kharan Top) on a long, rather gentle
slope, about $\frac{1}{2}$ way up, an
exposure of gray loam appears.

The gray gave
evidence with HCl
below, but not a
few inches from top.
Yellow - no evidence.
The yellow is brownish
(jointly) streaked with gray
(similar to ne. 7), no
bands or nodules.
The gray has iron tubes
without nodules (ne. sp.) &
scattered shells (ne. wt.)
The original rock is 4-5
in wide & quite uniformly
distinct. (example of gray & yellow)

This was evidently on lower slope,
in valley, & there was probably
a third base.

Farther South down slope toward
creek drift is exposed.

A long cut up slope to N. on E. side
of S.¹/₄ N.¹/₄ sec 12-79-36 shows drifts
almost to top, & there what looks like
a thin cap of yellow loam appears.

Views to W. show gently rolling surface.

On the slope just N. (going down) some
gray loam (iron talus) shows under
yellow. The next slope up also shows
gray loam under yellow, & all
these ridges show drift lower down.
The loam is evidently thin.

N. from S.¹/₄ part of sec. The country is
less rough than Est. & S.E.

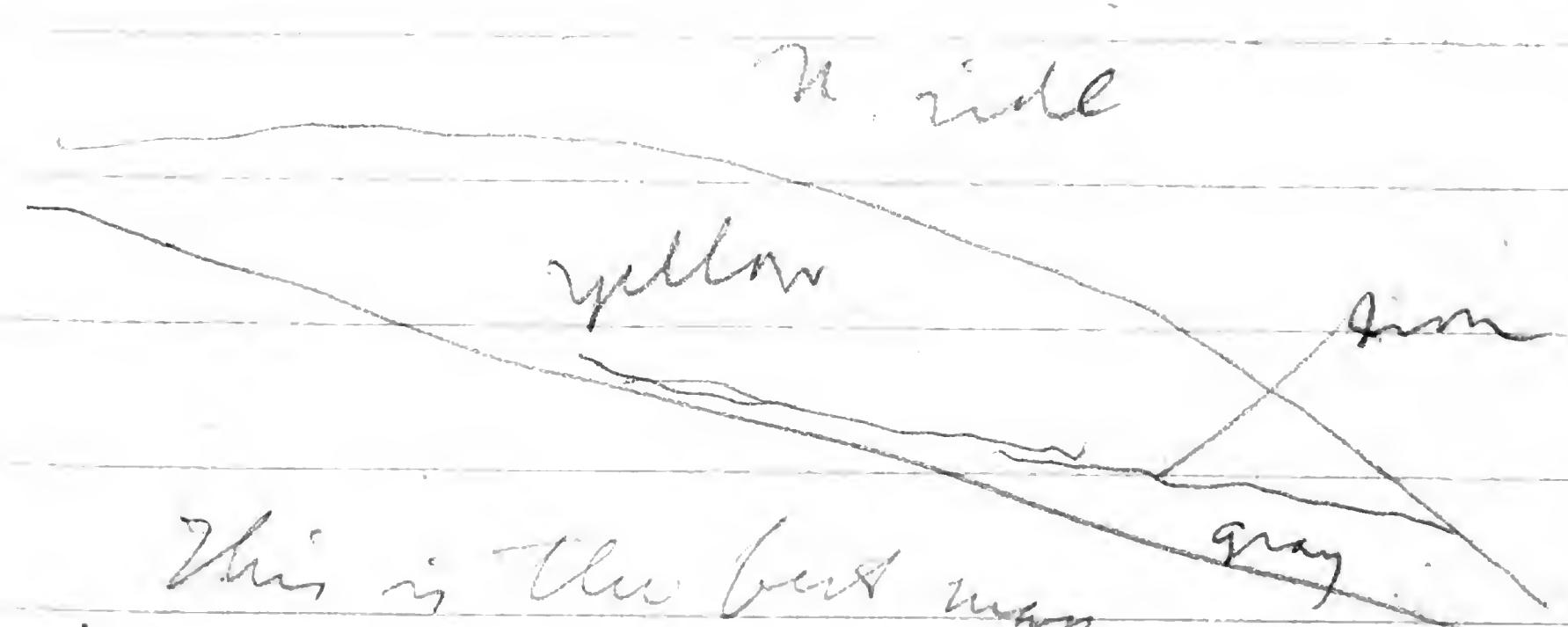
Turned W. on S. side and

on S. side S.W. 1/4 sec 12-79-36,
on E. slope, drift runs back up a
steep hill, near top a little
gray loam appears below 5-6 ft
of yellow.

On N. side S.E. 1/4 sec 3-79-36
a good cut (up hill going W.) shows
gray loam in bands. From today,
more lime weathering; numerous
shells, but colors like those might be iron.

2 or 3 ft exposed.

Above, 6-7 ft of yellow loam.



This is the best mass gray
of loam seen today, to present
time.

Nov. 6, 1921 Sunday.

Started from this -

Started in large cut on Twp. line
(at road) on C M & St. P.

The cut is somewhat broken
in place, but shows the various
elements in a number of places.

The strata run irregularly.

Collected slabs in the gray
loam near road, on hillside.

Yellow seems to have none.

A - With H. Cl. - No effervescence

B. - " " "

C. - " " " Effervesces. freely

D. - " " " No eff.

E. - " " " No efferv. { above it
late below } no eff.

F. - " " " upper foot no eff.
lower part " "

G. - " " " Effervesces freely

This image shows a page from a handwritten document. The page features several prominent, dark, cursive signatures or initials, likely belonging to the same individual. One set of initials, 'H. C. B.', is located in the upper left quadrant. Another set, 'J. C. B.', is in the center. A third set, 'M. C. B.', is in the lower right quadrant. The handwriting is bold and fluid. In the background, there are faint, thin horizontal and vertical lines forming a grid, suggesting a graph paper base or a technical drawing. The overall appearance is that of a historical or legal record.

about 11 miles long
about 11 miles long
about 11 miles long
about 11 miles long

whole country
whole world

A: Reddish brown, fine-grained sandstone
 B: Yellowish brown, fine-grained sandstone
 C: Light gray, fine-grained sandstone
 D: Light gray, fine-grained sandstone
 E: Light gray, fine-grained sandstone
 F: Light gray, fine-grained sandstone
 G: Light gray, fine-grained sandstone
 H: Light gray, fine-grained sandstone
 I: Light gray, fine-grained sandstone
 J: Light gray, fine-grained sandstone
 K: Light gray, fine-grained sandstone
 L: Light gray, fine-grained sandstone
 M: Light gray, fine-grained sandstone
 N: Light gray, fine-grained sandstone
 O: Light gray, fine-grained sandstone
 P: Light gray, fine-grained sandstone
 Q: Light gray, fine-grained sandstone
 R: Light gray, fine-grained sandstone
 S: Light gray, fine-grained sandstone
 T: Light gray, fine-grained sandstone
 U: Light gray, fine-grained sandstone
 V: Light gray, fine-grained sandstone
 W: Light gray, fine-grained sandstone
 X: Light gray, fine-grained sandstone
 Y: Light gray, fine-grained sandstone
 Z: Light gray, fine-grained sandstone

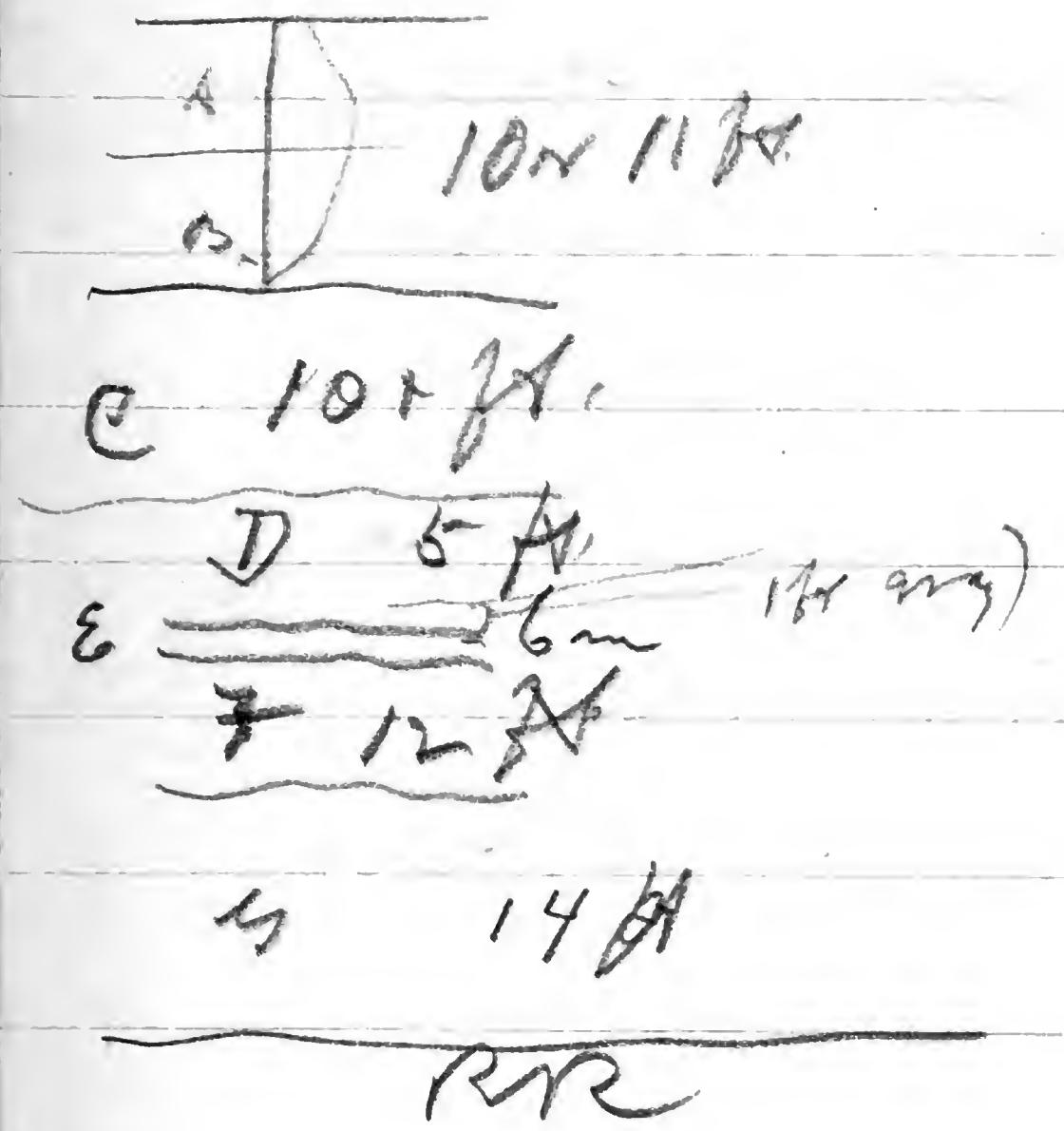
3 spines	g.	1140.	the station in Montañita was larger
3 spines	g.	1140.	the station in Montañita was larger
3 spines	g.	1140.	the station in Montañita was larger

G - more or less rostra pebbly
It looks somewhat like C - indeed,
very much like it.

E - Is a dark band with horizontal
bands of lighter color. No pebbles.
above it is about a foot of
fine brown stuff (gravelly slate)
which seems to belong with it, &
(the whole ^{belongs} with F.)

A dark mass, more or less laminated

(Estimate heights - independent of base level,
going up)



One 0. mile this side river
3 rods into Grandview cl)
This is not in drift.
On N. side it runs out
gravelly & broken!

Towards W. we took fossils
from gray layer & samples of
2 layers.

The gray layer cuts on a dark
rusty stuff like T., a foot or two,
& then the drift q.
There is a pebble in T.

The gray layer has iron tubes
& practically no nodules.
Now my spec. of shells all
in lower 6 ft. See sample.
To right (at D) the yellow
layer below is heavy, gray streaked &
the gray

To left range of gray layer
6 ft. above T. Also of
the heavy yellow at same
level to right.

Took another sample of yellow
layer 10 ft. higher - no efflorescence
The lower yellow sample
shows few nodules.

Collected shrimps on layer &
drift clay surface.
This cut is across a low ridge, running
just a little N. of N.

Cut N. of Aspinwall

Yellow upper layer is heavy, broken
with gray - about 9 ft with
soil. Many nodules (no
complex rounded) & scattered shells
and small pebbles & sticks.
Ovening layer irregular but about
4-6 in.

Gray layer with few nodules
but shells. About 5 ft at
middle of cut

10 feet low on S. side (less on N.)



There is a rusty
yellow band
thickening down into
Ramsay (redish)
& above it is 4 or 5
in. of chocolate layer
The yellow layer
has many rounded
nodules, &
fornite scattered
through

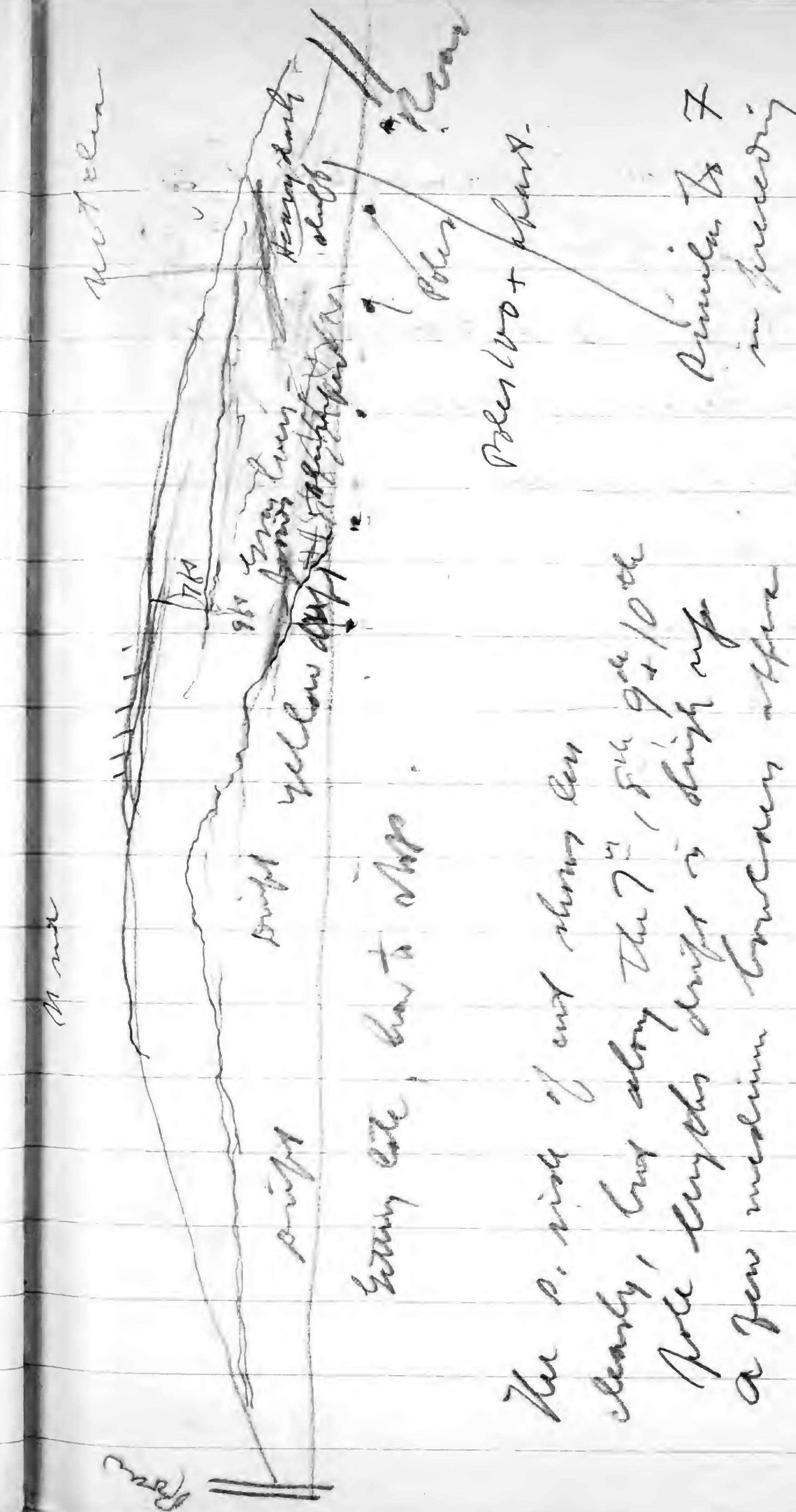
S. side is very
similar but
shows mainly
shells. It is
drift. It is
a little brown.

2nd cut W. of Aspinwall - 86v

Car. White 9-

At E. end a long stretch of
gray loam - notably, timbered &
forests (Cyanococcus, etc., evidently
a wet place).

Cut runs a short distance
out of use.



Nov. 7, 1921 Mon

Drove from Mason's to Munising
where I left my baggage.

Drove to cut in SW. cor. of sec. 9,
W. of Aspinwall.

Westerly from E. end.

Ophiolite (coming from side just W. of
bridge (out-side rec.) -) in of 5ⁱⁿ
hole length W. of E-W. bridge

yellow loam
7 ft

gray loam 9 ft.
some

about 7 ft [Rusty, sandy & somewhat pebbly
shades below into rusty, pebbly drift.
Few medium boulders.

The gray loam shades ^(?) below griti
abruptly into rusty, sandy stuff.

The "yellow" loam is quite heavy,
much gray, with rusty boulders & tuber-

Upper (ml) part seems to be brownish
The fossils in the gray loam upper
w/ $\frac{1}{2}$ of 5th pole length W. of
bridge are chiefly *Succinea*
avans & *Vallonia* (large), & a few
Gonodon *gigantea*, *Vertigo* & *Pyrina*.
Striotella.

In the lower part, opp. W. of
4th pole length, there are
Cymatites, etc., & evidently
this part was water.

All along, especially under the
S. side of cut, water seeps
out now.

The bank in 1^m-3^{ft} pole
length N. of bridge seems to
be made up of the dark
mushy stuff (one sample)
Is this in the pond?

that dark rock is not quite like 7. It is very lobular (jointed), somewhat rusty, & it appears as if the gray layer shaded into it gradually.

The upper part seems to be yellowish (probably yellow layer washed on top)

This was all lower, & probably a bog or pond was here.

At 7th pole (holes 100 ft or m) the drift has risen to within 6 or 8 ft of top.

gray layer — ⁶ lower yellow layer
gray few beds ⁵ thin yellow layer

drift 23

Woolies are very common in the finely-gray layers, & most abundant where most fossils.

Opp. end of 7th pole. The lower rests on same rusty, sandy layer as at 5th hole &

The lower 6 ft. of lower are heavily yellow. No woolies, but gray streaks abundant.

Saw 1 fine. antler on surface ~~near~~ base of yellow (lower) layer.

May have come from this place, but saw no others. Looked from latter place, will see again

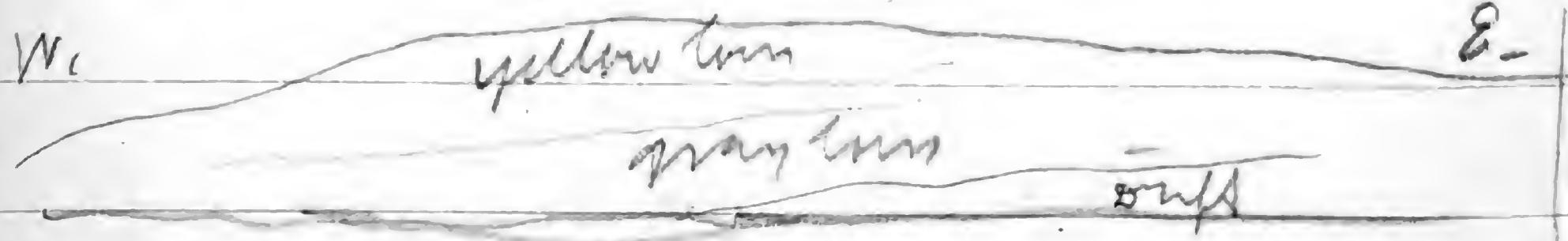
& *Pyrus. striatella* (few). This lower is gray layer (4 or 5 ft) & has few fossils. (See fossil & sample of gray)

At 13th pole length (end of it) is N. & S. bridge. The drift

runs high all the way to bridge, though the cut drops in depth, its highest part being about between 7th hole lower & end of 9th (or 9th) hole lengths.

Evidently a little gray limestone runs up over nearly (or) all the higher drifts. Can see gray bits here & there.

About 4 hole-lengths of this we run into sec. 8, but it is here low (about 10-12 ft?) & shows (on N. side) a little drift below of two layers (lower, grayish, with ^{greenish} nodules & fossils.)



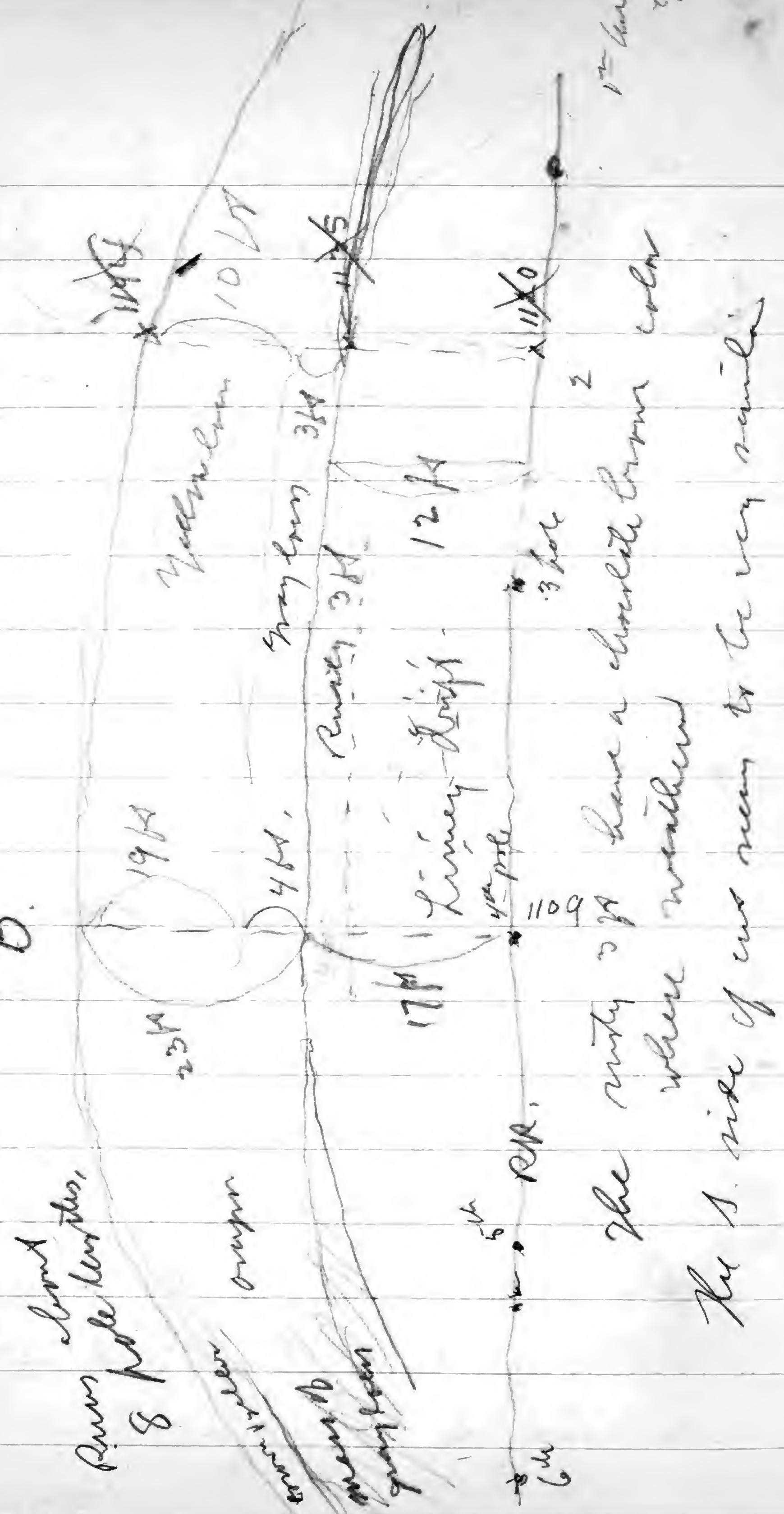
The next cut, in sec. 8, begins just a little E. of 9th-hole began 40 ft. line W. of E. line of sec. (This is N. side. S. side is probably E. 2 hole lengths as a high bank.) Poles are about 110 ft. apart.

Took elevation opposite middle of 2 hole lengths.

ج

A decorative flourish or signature mark, possibly a stylized 'M' or 'W', rendered in black ink.

1



(+ all above)

At no. 3. The top has about
2 ft. of soil & brown stuff, weathering
down into yellow loam. The
latter has no fossils & no
nodules, neither soil or yellow loam
effervesce with HCl.

The yellow brown (amp. below) is rather creamy, with rusty, chocolatey & grayish shot, but mostly yellow.

The preceding toward below is
distinct, 2-4 in., & change to gray
sandy or very abrupt.

The gray does not effervesce.
The gray does not effervesce.

On this a foot of base of
gray loam is the chocolate layer
alternately darker & gray.

Below it quite abruptly, is
a rusty layer, clayey, 1 ft or
more, slanting down into rusty
drift, very pebbly, few small
boulders, (soil &c.) & below is
effacement very truly.

Over 3 ft. of top of drift is
the very rusty stuff, intermixed
& few pebbles & sandy, & no lime.
Below that the drift is very
thin.

As seen the yellow layer is broken
& with gray colors, (below) has
rounded nodules & fossils.

The gray layer is separated
from it by irregular broken
rusty band (a foot or so of
transition). The lower
part of yellow & the gray have

fruity exposure to H.C. (being
deeper here)

Rock sample of fossiliferous yellow
6 ft above is base. Found fossils
up to within 7 ft of top.

Small rounded nodules in
the drift having fungi
The cut in S.E. cor sec 7, down
top is over 7 feet lighter gray,
on S. side is continuous, but double
on N. side. Somewhat irregular
but showing drift, gray base
& yellow base as before



The two last big cuts, on
 great curve in 2nd mile above
 Manila, show drift &
 loess. The N.E. one
 shows rusty drift & then
 a larger drift (origins
 Kawan) below.

The other seems to have
 only rusty drift.

Walked to Manila &
 took train at 1:15 for
 Defiance.

No bus to Defiance, RR
 in valley.

Reached Defiance at 1:35 P.M.
 After lunch went down
 the track.

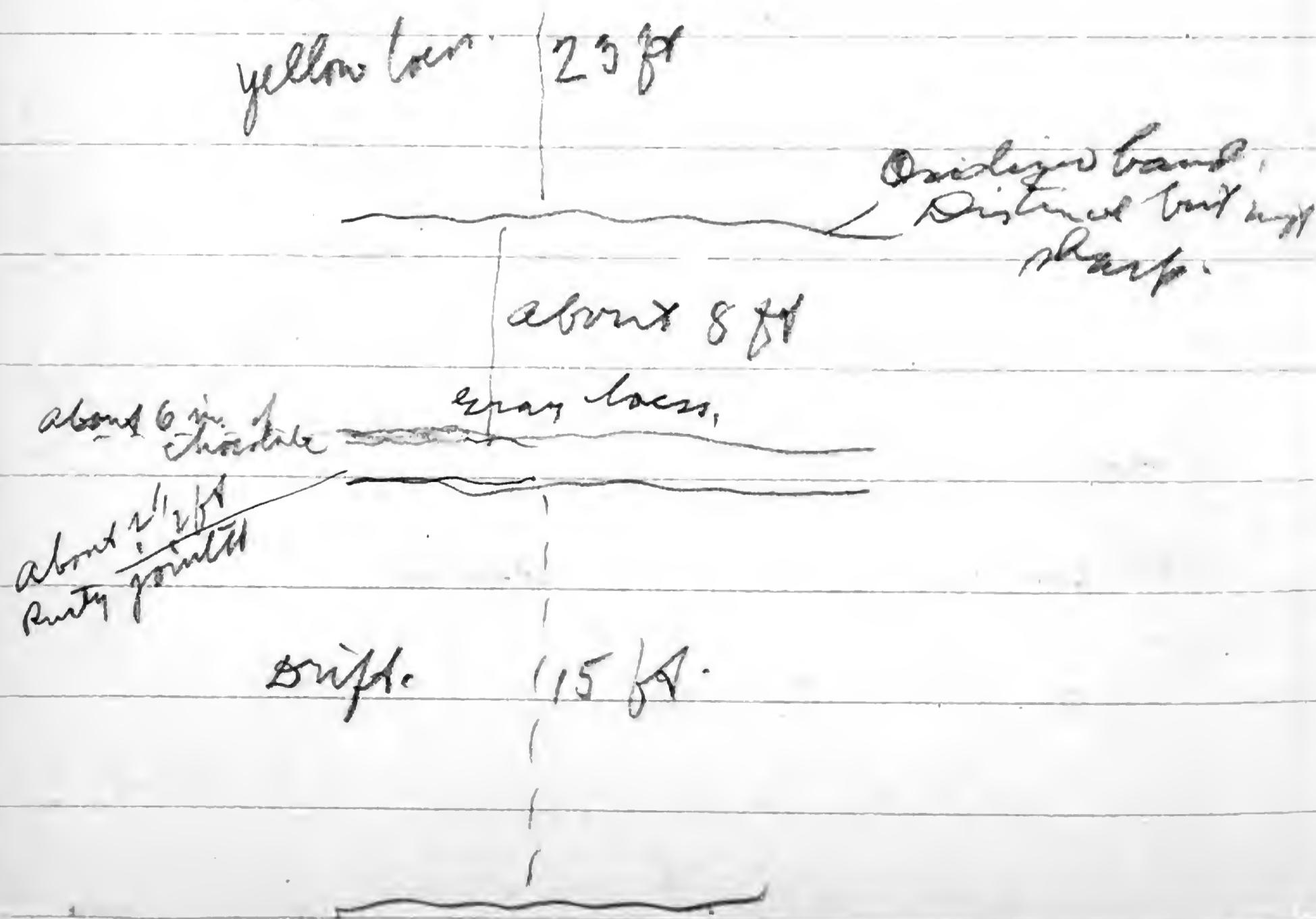
Cut 216 is overgrown but
 not dumped. Would be easy to clean.

It is much smaller than 217.

Cut 217 is still in good condition.
There have been small slumps, and
parts are overgrown, but it is
easy to clear what is desired, &
much is exposed.

This cut (on S. side) is just about
12 pole-lengths long.

Opposite the middle one (~~farther~~ either
way) I made section:



The gray ends above in a
a band 5-6 in wide, quite
rusty but not sharp, & in
another 5-6 in. grading into
yellow above.

All of the gray, including the
rusty layer, effervesces.

In lowest 1 ft. the upper, yellow
layer effervesces very little

One pole farther S.W. (at
highest pt.) the surface is
about 2 ft. higher than
where this sec. is taken.

Yellow layer 2 1/2 ft. below top, no
effervescence.

About 6 ft. lower, no efferv.

Another 6 1/2 " "

" few shells are scattered
through the yellow to within
a few ft. of top.

Loess, etc. points.

Very commonly the lower part
of gray loess has no fossils.

Fossils of gray loess are very
commonly softer and more friable
than those of yellow loess.

The gray loess effervesces.

The lower part of yellow loess has
brown (almost black) spots & streaks;

more gray, and is quite compact.

Upward the loess is lighter, loamy,

Took samples of yellow loess - ^{soil} 3 pm top

softer - 9 "

Rather firm - 15 "

Hard - 2 pm bottom

The lower part of the dry
effervesces faintly. Quite limey,
all seems to be Kansan,
rusty on surface, thick
with it, with much sand,
also took samples of

gray loess, 2 ft. from base,
Chocolate color

Rusty layer 1/2 ft. Color chocolate

There are lots of fine nodules
(argillite) from the lower
part of the Kansan - the

lowest 5 or 6 ft. -) southern
10 or more ft.)

At N. end on W. side the
gray layer is quite thick &
has many nodules (or nodule)
& iron tubes, but very few (if any)
fossils. Some fragments only.

There are few iron nodules
in gray layer of main
part of cut.

My middle section is a good
5 pole length (110 ft) N. of
S. end of cut, & a scant 5
poles S. of N. end.

The W. side runs down lower
at N. end, & bottom is
a little short of 5 pole length
from "center".

This cut is the same as
a number of those in Crawford
and Carroll co. Yellow layer,
gray layer, chondrite layer,
rusty nodular drift,
Rusty drift, (& in some cases
a blue-gray drift).

Usually fossils are most
abundant where lime
nodules are plentiful
but at N. end of cut
216 there are plenty of
nodules but practically
no fossil. The gray layer
is commonly thicker on
lower slopes, & thin out
upward.

Had 2 meals at Downing Hotel, & left
for Manning at 8^{1/4} P.M.

Nov 8, 1921 Tues

Arose at 4:15 AM, expecting to go to Karlsruhe on the 5:02 AM train. The busman failed me, and it was so stormy that I went back to bed, in the Park Hotel at Manning.

Arose at 8:30. It was mowing, and the ground was more or less whitened from the east. Left Manning at 9:54 AM via the C.M. & St. P. Ry.

Just beyond Corn Rapids we enter Wisconsin territory.

Just before reaching Cambridge cuts appear, & E. of village there are some large cuts. (See them.) - Some timber on bottoms at Cambridge.)

At Maxwell a low flat valley. Saw timber some good cuts within 2 miles W. of Melbourne. (steep.) W. of Vining - good cuts also E. (?)

Lve. Botna arr. Manning loc. am Aspinwall Manilla Defiance
 9:45 am. 9:57 4:29 AM 4:50 5
 12:37 PM 12:47 1:00 - 1:20
 57.75 cu. 5.5

Lve. Defiance arr. Manilla Aspinwall Manning
 9:05 am. 9:25 9:35 9:43 9:54 am.
 2:20 PM 3:00
 8:13 PM 8:30 8:45 9:07.

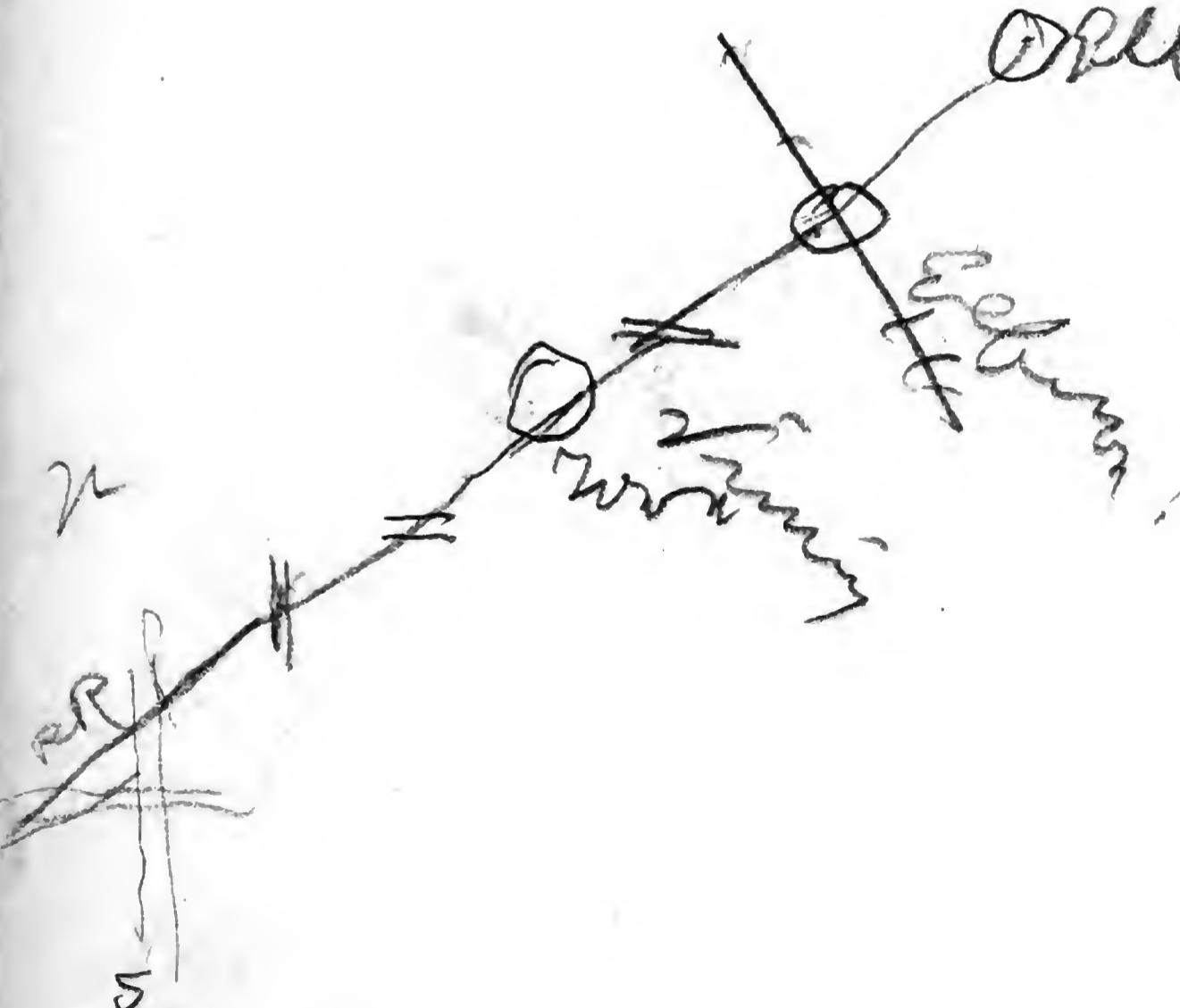
23
 Lve. Manning Botna Harlan loc. on Minden loc. and Co.
 5:02 am. - 5:49
 1:35 PM. - 2:21
 7:43 PM 7:52 8:31

am Agora loc. and

CR 4 P. R.R.

6:10 am. 6:55 9:40 am. 7:55
10:45 am. 11:30 4:55 PM 12:25

O'Reilly



E.O. Thorson, Akron, O.
 Dr. C.E. Wright, Clear Lake.
 Miss Patterson, Correctionville.
 Mr. Haldorff, Manning.
 E.C. Free, Spencer.
 J.H. Cline, West Union,

M.H. Hall, West Union (naturalist).

Cheek-Manning to Cedar Rapids
Nov. 8, 1921 P G 247342

Coalition
 Plates
 Boxes
 Barber
 White to Zinc
 " " Zinc

Tree. con. 7 ft.
 Gray " 5 ft.
 Kansan (yellow) 5 ft.
 gray drift
 aft. soil bar. 4 dm.
 sub. gravel 13 ft.
 drift (sub.) beds 2."
 " .. underlying 17"

